

Document 1:

ATA STIG Response to FAR Part 60 NPRM

(Docket Number: FAA-2002-12461)

Note: See STIG Copy of NPRM with circled reference numbers submitted to the docket as separate document. This will assist in guiding the reader to the specific Federal Register page for comments related to the numbered items.

INTRODUCTION

Throughout this document areas will be encountered where there are several or repeated responses to the same issue or topic. This confusion results from the complexity of the NPRM where items are repeated in the preamble, rule, and QPS sections.

ITEM # 2	Page # 60287-8	60.5
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Discussion: The intent of the proposed QA program is to “add to the efficiency and effectiveness of the FSD.” This will not necessarily be the result for most operators. Currently many operators run successful and effective training programs using their training devices without any formal QA program in place. The incremental benefit of creating and administering a QA program in accordance with the rules and procedures set forth in this document will not be worth the cost of doing so. The implementation of the QA program in the manner set forth herein, will cost each operator significant amounts of money to set up and to operate, beyond what is already spent for training device support.

Although the ATA does not oppose the concept of a Quality Assurance Program (QAP), the FAA has never offered any evidence that there currently exists a quality control problem in the way Part 121 operators maintain their FSDs. There is no evidence that the QA program will improve the training of Part 121 aircrews. The proposed QAP has grown out of the process of international joint recognition of FSD qualification. The FAA offers no valid justification for the additional expense that will be incurred by those operators that don't intend to pursue joint recognition.

Several references are included in the preamble discussing items that do not appear in the rule. For example the appeal process discussed in paragraph d.

Recommendation:

- The QAP should only be mandatory for those sponsors seeking joint international recognition of their FSDs.
- If the QAP must exist, other conflicting FAA inspections (NASIP, ATOS, etc) should be prohibited by rule.
- If the QAP must exist, the requirements should be published as a separate QPS appendix containing the required content and how the program should be structured.

ITEM # 3	Page # 60288	60.5 General Comments paragraph 3
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Incorporated into item #2, also see item #35.

ITEM # 4	Page # 60288	60.5 General Comments paragraph 3
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Discussion: The paragraph discussed does not appear in the rule. However, this requirement is virtually impossible to comply with. For example, an operator who sponsors a foreign owned simulator which is located in an area of the world where they base pilots for their operations. It is cost-effective to use that simulator because it is too costly to bring pilots back to the US or to send them to a JAA approved simulator in Europe. The training need is not large enough to justify the cost of placing an additional simulator owned by the operator in that part of the world, nor the cost of the infrastructure required. This paragraph would require operators to impose a QA program on the foreign simulator owner in order to sponsor that simulator. This would be virtually impossible to enforce. This requirement is not cost effective. The imposition of this requirement will cost operators more money to maintain pilot proficiency in that part of the world.

Recommendation: Eliminate this requirement for foreign owned simulators sponsored by U.S. operators.

ITEM # 6	Page # 60288	60.7 (c)
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Discussion: The ATA is opposed to the 600 hour rule. We take particular exception to the comment "...is proposed to ensure that the sponsor retains the high level of interest..." If a sponsor does not present an acceptable device the customer will simply go elsewhere. In addition the 600 hour rule potentially places a significant financial burden on the industry at a time when every dollar is critical. Situations arise where FSDs are used extensively in other contract training programs that specify the same quality of training device as when the FSD is in an FAA program. Examples of this would be USAF leasing of the AA 707. FAA qualification is still required because of the Part 91 operators using the FSD. Another example would be an FSD being used by a foreign carrier for a fleet where the US carrier is phasing out the type.

Also see item #42.

Recommendation: Remove the 600 hour rule.

ITEM # 7	Page # 60289	60.9 (2)
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Discussion: Item 60.9 (b)(1)&(2) propose that the sponsor establish a mechanism in order for certain persons to provide comments regarding each FSD and its operation. The mechanism is to provide for receipt of those comments, provide for the examination of each comment, provide for the classification of the content of each comment, provide for the determination of importance of each comment, and take appropriate action.

The primary requirements of FAR 60 are targeted towards an improved simulation training tool and environment by establishing specific measurable performance standards and establishing QA monitoring programs to ensure compliance. The basis for compliance and measurement are standards and data.

The proposed mechanism described in 60.9(b)(1)&(2) to solicit comments does not make good practical sense as it provides a method to mix a myriad of personal opinions into the established standards and data based criteria. The proposed rule further dilutes each sponsors technical

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capabilities by tying up valuable resources to receive, examine, classify, judge, take action, and track each comment.

Sponsors will have a difficult time dealing with opinions, while regulators will find it difficult to enforce compliance. One could envision a scenario occurring in which an FSD is qualified one day followed by a trainee registering a comment the next day that states “the simulator pitch is more sensitive than the aircraft”. Is the trainee correct? Did the trainee have difficulty on the check ride?

Item 60.19 requires certain actions be accomplished on a recurring basis that include QPS performance demonstrations and objective tests, functional preflights, maintenance of a discrepancy log, NSPM recurrent evaluations, and continued maintenance on the FSD. In addition, the proposed rule requires the Sponsor to establish an NSPM approved QA program and keep the FSD up to date with data package updates.

FAR 60 contains sufficient requirements to guarantee the continuous performance of each FSD. A requirement for comments (i.e., personal opinions) is redundant, impractical to manage and regulate, and has no place in a system based upon standards and data.

Also see items #46 and #48.

Recommendation: Remove the requirement to collect and action comments.

ITEM # 9	Page # 60289	60.9 (c)
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Discussion: In accordance with the QPS, the Statement of Qualification will be a 6 page document. If posted adjacent to the FSD, it is unlikely that a posting of that size will be looked at by users to determine what is or is not functional within the device, and see what the device is NOT qualified for.

Recommendation: Rewrite this section to make the Statement of Qualification a more concise, user friendly, and readable document.

ITEM # 9A	Page # 60289	60.11(b)
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See item # 28A

ITEM # 10	Page # 60290	60.13 (a)
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Discussion: It is unclear from the discussion which data the FAA wants and when they want it. In some cases, the data package delivered for a new FSD contains a vast amount of data that is not included in the QTG to support the required objective cases. Does the FAA want the entire package? In addition, it currently implies that the entire data package must be re-sent to the FAA for each recurrent.

See item #53-57.

Recommendation:

Document 1:

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(Docket Number: FAA-2002-12461)

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- Change the wording of the paragraph to require only that flight test data to support the objective tests in the QTG be submitted. Any remaining data would be "available" for review during the evaluation.
- Delete the requirement for submitting the flight test data for each recurrent evaluation.

ITEM # 11	Page # 60290	60.15 (a)
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Discussion: The TPAA inspectors neither have the expertise or time to review a QTG. A survey of several major operators confirmed that the TPAA never reviews the QTG but defers to the NPSM.

Recommendation: Recommend submitting the request directly to the NSPM with an information copy to the TPAA.

ITEM # 12	Page # 60291	60.16(c)
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Discussion: Paragraph (c) in the discussion has been omitted from the corresponding section in the rule. The intent of this paragraph must be retained in the rule. Without it, previously qualified FSD's could be subject to the new performance requirements of part 60, for which they were never designed, nor are they capable of meeting due to limitations of their original data packages.

See item #66 and #69

Recommendation: The intent of this paragraph must be re-instated in the rule.

Add language to the rule clearly stating that additional qualifications will continue under grandfather provisions, and will not require meeting the new Part 60 requirements as long as the original qualification was completed prior to issuance of Part 60.

ITEM # 13	Page # 60292	60.19 (a)(2) & (3)
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Discussion: The requirement for the functional checkout before each training day is sufficient. All operators have systems in place for documenting the daily preflight and informing the instructor that it has been completed. The 7 day rule would be difficult to track and makes no provision for an FTD that is in modification or overhaul.

Recommendation: Remove the 7 day rule as it is redundant.

ITEM # 14	Page # 60292	60.19 (b)(2)
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Discussion: The ATA does not consider a scheduling "policy" appropriate for inclusion into a federal regulation. Current practice is to submit either an annual or semi-annual letter with requested evaluation dates. The NSPM scheduling office then coordinates any conflicts with the sponsor. This system has worked quite well for several years.

Recommendation: Change the wording to reflect either the annual or semi-annual letter.

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ITEM # 16	Page # 60293	60.23 (c)
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Refer to Item # 85-95

ITEM # 18	Page # 60295	60.31 (a)(1)-(3)
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Discussion: The discussion needs clarification of "..copy of the programming.." / "..all programming changes.." This requirement, as written, would mean that a sponsor would have to keep copies of every, out of date, visual model or Jepp tape ever installed. In addition, archived copies of the qualification software generally cannot be reinstalled following the first hardware modification that involves a Common Data Base (CDB) update.

Recommendation: Change the wording of the paragraph to require that the sponsor have a system to trace the current version of the simulator back to the original qualification software/hardware and delete the requirement for maintaining the actual "copy" of the programming.

ITEM # 19	Page # 60297	60.35 (b) paragraph 7
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Discussion: The ATA strongly opposes degrading the qualification of all level A simulators after a two year period. The FAA discussion of the status of level A simulators based on an accident 17 years ago begs the question as to why they haven't long since been gone. As long as there are valid training objectives that can be accomplished in a level A simulator it should be the sponsor's business decision as to when the device is no longer viable and not within the scope of the NSP. If there is money to be made on the 33 remaining Level A simulators, and there are operators qualified to get their training in them, then it should be the sponsor's decision when to shut them down.

Recommendation: Delete the entire paragraph.

ITEM # 22	Page # 60298	
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Discussion: The ATA strongly believes that the cost analysis used in this section for a QA program to grossly under-estimated. The costs for setting up and administering the program as described are estimated by one carrier to be in excess of five hundred thousand dollars (\$500,000).

Recommendation: The QAP should only be mandatory for those sponsors seeking joint international recognition of their FSDs.

ITEM # 24	Page # 60299	60.19
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Discussion:

The NSPM asserts under the section-by-section discussion of §60.19, *Inspection, Maintenance, and Recurrent Evaluation* that:

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(Docket Number: FAA-2002-12461)

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1. 70% of the qualified FSDs are used an average of 4 days each week for 42 weeks of the year and are used not more than once each week for the remainder of the 10 weeks each year;
2. 30% of the qualified FSDs are used an average of 6 days each week for 26 weeks, 3 days each week for 13 weeks, and not more than once each week for the remainder of the 13 weeks each year.

The FSD usage estimated in Case 1 is 178 days a year. Case 2 yields the most days an FSD is in use a year at 208. Flight simulation devices (FSD) for major commercial carriers are in use over 360 days each year, approximately 200% of the case 1 estimated use and approximately 175% of the case 2 estimate. It appears that a significant number of the FSD maintenance and reporting requirements, e.g., 60.25(b) and (c), are designed for a Sponsor who operates their FSDs at a slower pace estimated in either of these "average" cases and not for a large carrier, operating around the clock in excess of 360 days each year.

Recommendation:

The NSPM must allow for a high volume user to operate unencumbered by artificially tight timelines and record keeping requirements. If some of the requirements remain unchanged, the NSPM must staff their office around the clock, 364 days each year or immediately move to grant Designee authority to large select high volume Sponsors.

ITEM # 25

Page # 60300

60.23

Discussion: The ATA strongly believes that the cost analysis (assumptions) used in this section for modifications to be grossly under-estimated. The cost for administering the program as described are estimated to be much higher, based on a larger number of modifications per device per year. The drafting of the notification is a new and additional task. It would take approximately 5 hours for a minor mod, including the responsible management review and approval process, but 15 hours for a major mod. The process required by Part 60 states that the sponsor must wait 21 days for approval, or deemed approval if no response is received. The additional cost of starting and stopping work, as well as the added waiting time enforced by this requirement would add additional time and costs.

Recommendation: Re-evaluate the cost benefits of adding this requirement based on additional industry inputs.

ITEM # 27

Page # 60300

International Compatibility

Discussion: The ATA disagrees with the second sentence stating "...and has identified no differences with these proposed regulations." The rule should not be published until the QPS documents are updated to reflect the ICAO guidance.

- ICAO simulator qualification criteria were updated in 2001 and are currently being incorporated in the JAR STD-1A Draft document. The NSPM has stated incorporating them in the QPS would delay getting the rule through the federal bureaucracy.

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- The requirements of the QPS are based on an older version of the ICAO QTG document 9265. There is a new version that is currently under revision and should be completed in early 2003. It would make more sense to make this revision of Part 60 match that document rather than have to revise Part 60 again in less than a year.

Recommendation: Withdraw the NPRM and update the QPS requirements to reflect the current industry agreed upon ICAO guidance.

ITEM # 28	Page # 60300	Regulatory Evaluation
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Discussion: The ATA believes the FAA has underestimated the requirements placed on the NSPM by this new Part 60. The number of steps that must be reviewed and approved by the NSPM is increased greatly from current practice. As well, the NSPM will have to be capable of responding on a 24/7 basis for some of the approvals he will be required to make. For example 60.25 (b) requires NSPM approval to train with a missing, malfunctioning, or inoperative component. Almost all FSD maintenance is done in the early hours of the morning here. If an approval is required to exceed the 7 day limit for a malfunctioning part, the request will likely come in the early hours of the morning. The NSPM will not be able to delay a response until "normal" business hours since the FSD and its crews will be losing money at the rate of over \$1000/hr for the time that the device is out of service.

ATA members will submit their cost estimate of implementing the NPRM as separate inputs to the docket.

Recommendation: The FAA should review the industry financial impact analysis and revise the content of the proposed rule to lessen the financial burden.

ITEM # 28A	Page # 60302	1.1
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Discussion:

Reference FAR 1.1 General Definitions:

The proposed definition for Flight simulator states in part "a full size replica of a specific type or make, model, and series aircraft cockpit". The definition for Flight training device states in part, "necessary to represent the aircraft or set of aircraft in...". In the proposed FAR paragraph 60.3 Definitions, the term "series" is not defined. The term "set of aircraft" is defined as "Aircraft that share the same handling and operating characteristics and similar operating envelopes..". Since an aircraft series meets the proposed definition for "set of aircraft" and a definition for "set of aircraft" is already proposed, the term "series" should be deleted and replaced with the term "set of aircraft" throughout the document. In addition, the term "ground operation" should be replaced with the term "surface operation", since surface operation is utilized in Attachment 3 to Appendix A as operational task b. "Surface Operations".

Recommendation:

The proposed FAR 1.1 definition for Flight simulator should then read in part, "Flight simulator means a full size aircraft cockpit replica of a specific make, model, and type aircraft. It includes

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the assemblage of equipment and computer programs necessary to represent the aircraft or set of aircraft in surface and flight operations..."

ITEM # 28B	Page # 60302	1.1
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Discussion:

Reference: Far 1.1 General Definitions - Flight Training Device.

The proposed FAR 1.1 definition for a "Flight training device" states in part, "a full size replica" (60302). This definition conflicts with QPS Appendix B, General FTD Standards 2. b. (60383) which states in part "The FTD must have equipment...simulated sufficiently for authorized checking". Where does the term "*full size replica*" appear in the definition?

Recommendation:

In lieu of present and future advances in technology coupled with benefits derived from AQP (SFAR 58) type training curriculum, the more unconstrained FTD definition offered in the QPS Appendix B, General FTD Standards 2. b. (60383) should be used for the FAR 1.1 General definition of FTD and for the General FTD Standards 2 a. definition also.

ITEM # 29	Page # 60303	60.1
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Discussion:

1) This rule provides regulatory information and further guidance to those who wish to become Sponsors of one or more FSDs and how a Sponsor must act to qualify and maintain the qualification of an FSD. In addition, it provides the technical requirements for an FSD to be awarded a specific level of qualification. **This rule should not address how an FSD is used.**

That information is contained within other parts of this Chapter and should be between the Training Program Approval Authority (TPAA), the Sponsor, and the user.

2) It states this applies to ALL FSDs. It does not address the use of FSDs that are not qualified by the FAA but are used as part of an approved training program even though no training credits are granted. For example, one carrier has used their B727 CPT and a DC-10 Level 4 equivalent device for training in an approved training program even though neither was qualified by the NSP.

Recommendation:

1) "Use" should be removed from the title of this part and all references regarding how a device is used should also be removed.

2) This paragraph should be changed to allow for the use of non-qualified FSD's as training aids in an approved training program. This is then under the jurisdiction of the POI. This could be done in paragraph 1.1, definitions, to exclude unapproved devices from the definition of FSD's. Similarly, the rules, requirements, and penalties associated with using an FSD that is not qualified should themselves be clarified to allow for the use of non-qualified FSDs with TPAA approval.

ITEM # 29A	Page # 60303	60.1
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Discussion:

There is a typo error in paragraph (c).

Recommendation:

.... requirements of 60.31 should read as requirements of 60.33.....

ITEM # 32A

Page # 60303

60.3

Discussion: The definitions below are proposed to clarify the terms QTG and MQTG.

Recommendation:

Qualification Test Guide (QTG).

The primary reference document used for initial evaluation of an aircraft FSD. It contains test procedures, test results, performance or demonstration results, statements of compliance and capability, the configuration of the aircraft simulated, approved objective data and other information for the evaluator to assess the FSD against the applicable regulatory criteria.

Master Qualification Test Guide (MQTG).

The FAA-approved Qualification Test Guide with the addition of the FAA-witnessed tests, performance or demonstration results, applicable to each individual FSD. MQTG is the reference document for subsequent evaluations.

ITEM # 32B

Page # 60303

60.3

Discussion:

Reference Qualification Performance Standard:

For the purpose of better definition, following change is suggested.

Recommendation:

“The collection of procedures and criteria” should read as “The collection of procedures and regulatory criteria”

ITEM # 32C

Page # 60303

60.3

Discussion:

Reference Subjective Test:

Definition, as provided, is inconsistent with Appendix A, Attachment 3, Item 3 – Simulator Systems.

Recommendation:

Please correct the anomaly.

ITEM # 35

Page # 60304

60.5

Discussion: The FAA has never identified a quality problem with FSD management. An analysis of nine years of FAA evaluations (including 25 initial evaluations) at one major carrier yielded a discrepancy rate of less than 2.8 discrepancies per evaluation. In no case was the

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quality of the FSD questioned. The program as detailed in the rule has unacceptable financial consequences for ATA members and the FSD industry at large.

Specific Industry Comments:

The text in the Part 60 is different from the description of the text in the Section-by-Section discussion area. The discussion describes 5 paragraphs, a through e. The rule only contains 4, a through d. The proposed paragraph b in the discussion should not be included in the rule and therefore the rule is acceptable without it. However when the discussion is read in greater detail, it contains text that really should be in the rule. For example, in paragraph c of the rule, we feel that rule is deficient because it neither sets time limits nor allows for an appeal process. Yet acceptable time limits and appeal process are described in the discussion. In this case, the discussion text should be in the rule.

From a philosophical point of view, a quality assurance Program would normally be considered to be a good thing. However in the current context, our airline, and I would assume most others, operates an effective training system using FSD's that are well maintained and are effective training tools. We are under the oversight of our own management and local POI. The methods we use to obtain these results have historically worked reasonably well, and have resulted in a good quality training system at a cost that is economical and affordable by the airline. The imposition of a "new" quality assurance program will have little effect on the results of the current training system. Although the text claims that the cost to create and administrate this system is minimal, there are indeed costs associated with the startup and maintenance of such a system. We estimate that there is a significant startup cost for a formal QA system as well as a significant annual running cost. These costs go directly against the profits of the corporation and DO NOT add appreciable value to the training system operation. The reasons for instituting a formal QA program do not justify the costs of doing so. In our opinion, a formal QA program should not be imposed on FSD operators or sponsors. It can be argued that the imposition of the QA system will force those organizations whose operations may be of questionable quality to improve their quality to certain minimum level. Even the current regulations would allow the NSPM to take action against an operator that did not meet that undefined minimum quality, and in fact the NSPM has done so in the past.

Inclusion of this quality program places airlines under two dissimilar quality programs; that required by §60.5 of this rule and the Air Transport Oversight System (ATOS) item 4.2.8, *Simulators/Training Devices*. Since the goal of these two quality requirements are the same—system safety—these two quality program requirements should be appropriately harmonized so that a Sponsor now subject to Part 60 and ATOS will be required to meet the standards of only one FSD quality program.

Neither the rule or the QPS provides information on how the Quality Assurance Program should be set up and administered. The industry expended considerable financial effort and manpower in 2000 attending conferences and developing the four programs that were developed under the "voluntary" program. No reference to the guidance documents developed and published on the NSP web site is included in either the rule or the QPS.

Recommendation:

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- The QAP should only be mandatory for those sponsors seeking joint international recognition of their FSDs.
- If the QAP must exist, other conflicting FAA inspections (NASIP, ATOS, etc) should be prohibited by rule.
- If the QAP must exist, the requirements should be published as a separate QPS appendix containing the required content and how the program should be structured.
- At the least, remove rule paragraphs §60.5 (b), (c), and (d) on pg. 60304, and merge with the QAP requirements in Appendix A, QPS, 5., QAP, pg. 60311,
or, preferably,
combine §60.5 (b), (c), and (d) with the QAP requirements in Appendix A, 5., QAP, and move into a **NEW Appendix E for Part 60, QPS for a QAP**. Then, reference App. E within each FSD QPS. The new Appendix E should also include appropriate components of the FAA's SQAP that are given on the web site (e.g., the SQAP Std., Process Guidelines, Job Aids, etc.) along with practical guidance and samples of an acceptable SQAP.
Reason: §60.5 (b), (c), and (d) seem redundant in that they are either inherent in paragraph (a) or repeated in the App. A QPS, especially (b) and (d). Also, §60.9(b)(1) is repeated in QPS 5.f.(19). And, §60.9(b)(2) &(3) appear to describe processes that should be a part of QPS 5.f., not §60.9. In addition, regulation §60.15 (b) (2) is already inherent in regulation §60.15 (b)(1)! These are some examples. So, these particulars should be moved to the QPSs or, alternatively, to a NEW App. E, which will be more easily changed.
To better guide sponsors, the new App. E should contain practical guidance and samples based on the FAA Academy's approved QA program along with appropriate components of the FAA's SQAP (e.g., the SQAP Std., Process Guidelines, Job Aids, etc.).
- Include the requirement/process in the QPS for appealing SQAP discrepancies written by the FAA.

Reason: This important requirement is discussed in the Section-by-Section Discussion (pg. 60286), but does not appear in the regulatory language.

ITEM # 36	Page # 60304	60.5 (a)
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Discussion: The six (6) month time period to develop and qualify a QAP is not practical. With only one FSD in the FAA program it has taken over two (2) years for the NSP to develop a program and that program has yet to be audited. The first "voluntary" program to be submitted took over two months simply to develop the quality manual.

Recommendation: Change paragraph (a) so follows:

(a) Within one year after effective date of the final rule, all sponsors must submit a proposed Quality Assurance Program as detailed in the QAP QPS (or other document if so published (see earlier comments)). The NSPM will review the program and notify the sponsor within six

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months if it is acceptable. The sponsor will then implement the program, conduct any required audits, and schedule the initial FAA audit within one year. After (date 3 years after effective date of the final rule) no sponsor may use or allow the use of or offer the use of an FSD for flightcrew member training or evaluation or for obtaining flight experience to meet any requirement of this chapter unless the sponsor has established and follows a quality assurance (QA) program, for the continuing surveillance and analysis of the sponsor's performance and effectiveness in providing a satisfactory FSD for use on a regular basis as described in the appropriate QPS.

ITEM # 37	Page # 60304	60.5 (b)
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Discussion: It is unclear from the rule language what "the program" means. In addition there appears to be a discrepancy in the lettering of the paragraphs in the preamble portion of the rule. If it is a deficiency in the QAP then the FAA process should specify how it is to be changed. It appears that paragraph (b) and (c) state the same thing.

Recommendation: Delete the paragraph. (see next comment)

ITEM # 38	Page # 60304	60.5 (c)
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Discussion: A time limit should be imposed here as it does not necessarily allow the sponsor adequate time to address changes that may be required. The requirement is only noted as "after", so it could be possible that the sponsor could be deemed to be in violation of the rule only one day after notification. A 12 month time limit should be defined. If, after Part 60 has been in effect for a few years and all sponsors have approved QA programs, then this time period can be reviewed with a view towards shortening it. If FAA decides the QAP does not meet their requirements (somewhat subjective), procedures must be changed to satisfy NSPM (probably the Evaluator).

This paragraph can be read either that a) the NSPM does not require that a Sponsor's quality program be pre-approved and when program deficiencies are discovered, presumably during an audit, they must be corrected; or b) the NSPM will pre-approve a Sponsor's program and when submitted for approval, the NSPM will then determine whether the program meets the specified requirements. The paragraph needs clarification of its intent.

Recommendation:

- Recommend FAA establish some form of redress on these matters so subjectivity is eliminated. If not, each carrier is subject to the differing whims of whichever evaluator is assigned.
- Define a time period for resolving the discrepancies (12 months)

ITEM # 38A	Page # 60304	60.5 (c)
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Discussion:

Sponsor's right to appeal, as discussed in preamble, should be incorporated in the rule.

Recommendation:

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The sponsor would have the right to appeal to the Administrator such a notification from the NSPM to modify the program. When such an appeal is filed within 30 days of the NSPM notification, the requirement to make the modification would be delayed pending a decision by the Administrator, unless an emergency involving safety of flight requires the immediate modification.

ITEM # 39

Page # 60304

60.7

Discussion: There is no explanation of, nor provisioning for, creation of the process for gaining sponsorship approval. In addition, there should be a phase-in of the new qualification system so to minimize confusion and administrative load on both the sponsors and the FAA.

Recommendation: ATA proposes that the sponsor qualifications be established in a pre-defined order over a certain period as Part 60 goes into effect. This will allow all parties to create systems and processes to manage the new requirements. All processes needed for application and communication of these items should be explicitly defined before Part 60 goes into effect.

ITEM # 40

Page # 60304

60.7 (b) (3)

Issue: A significant possible interpretation conflict exists between Clauses 60.5 (a) and 60.7 (b) (3) during the phase-in of this new ruling.

Discussion: Clause 60.5 (a) allows operators to continue to operate without an approved QA program for up to 6 months after the effective date of this new ruling. Clause 60.7 (b) (3) refers to 60.5 generally, but it would be more clear if 60.7 (b) (3) specifically enumerates the 6-month grace period. Without such a clarification, the likely misinterpretation of 60.7 (b) (3) is that all operators are by default *not* sponsors of their equipment on the effective date of the ruling. Thus, while waiting to be declared a sponsor until their QA program is approved, an operator will immediately be unable to use their entire fleet of FSD's, which had for years been perfectly acceptable training devices. The operational costs of this scenario would, obviously, run into millions of dollars.

In addition to the tremendous operational costs, the new potential for civil and criminal penalties causes any ambiguities to be unacceptable. Objection to this possibility cannot be overstated, as it has a very real possibility of paralyzing the entire domestic training infrastructure, bringing with it obvious economic impacts that would be felt worldwide in nearly every business sector.

The vehement objection to the possible misinterpretation notwithstanding, the choice of 6 month for the phase-in period for developing a QA program is woefully insufficient for many reasons, not the least of which is the issue of NSPM resource availability. Based upon historical NSPM resource availability, the NSPM will be unable to service even a small portion of the requests for review and approval of QA Programs during the first 6 months after Part 60 goes into effect. Operators must have a means of protection against having their training programs completely disqualified, which is a highly probable event with the current wording of the proposed Part 60.

Document 1:

ATA STIG Response to FAR Part 60 NPRM

(Docket Number: FAA-2002-12461)

Note: See STIG Copy of NPRM with circled reference numbers submitted to the docket as separate document. This will assist in guiding the reader to the specific Federal Register page for comments related to the numbered items.

Recommendation: A much longer period of phase-in is needed, and there also should be a specific enumeration in Part 60 that automatically qualifies all things training-related as acceptable that were in good standing prior to the effective date of the new ruling. A suggested starting point for such a clause:

In consideration of the cost and effort that Sponsors and Operators have expended in developing infrastructure and procedures that meet the current rulings that are proposed to be replaced by Part 60, Sponsors and Operators shall be allowed to continue under current Appendix H guidelines with Advisory Circular recommendations, in toto, for a period of up to 3 years after this ruling goes into effect. Transition to FAR Part 60 shall be made solely at the operator's election during that three year period, with the option of separate election for each aircraft type. The NSPM will assist the sponsor in evaluating the preparedness of the sponsor's Part 60 provisioning.

ITEM # 41

Page # 60304

60.7 (b) (4)

Issue: This clause grants full and unbridled veto power to the NSPM over sponsorship.

Discussion: This clause gives the NSPM full veto power over a candidate sponsorship, with no definitions of what requirements the NSPM will use to evaluate the candidate sponsor's acceptability to the NSPM. If there are additional requirements which the NSPM intends to impose, they should be enumerated in appropriate parts of this Part 60. An open-ended NSPM veto power over sponsorship is neither acceptable from a business perspective nor rational from an air safety perspective.

Recommendation: Reconsider the wording of this clause.

ITEM # 42

Page # 60304

60.7 (c)(1)

Discussion: The ATA is opposed to the 600 hour rule.

Specific Industry Comments:

The 600 hour requirement should be removed as it should be a business decision of the operator as to how the device is used and not the federal government. There are situations, such as when a Part 121 carrier is phasing out a fleet, where the operator could be still making a profit on leasing the FSD to foreign carriers. This provision limits the capability of an airline dry leasing a simulator to another operator.

The 600 hour figure is too restrictive and may impose additional costs on the airline. In the worst case, if an airline only needed an additional 100 hours per year, if there was no other U.S. sponsor with spare time available on an appropriate device and was willing to lease time on that device, then conceivably the airline would be required to purchase an additional FSD to meet the 100 hour requirement, costing say \$5,000,000. Alternately, the airline would have to lease an additional 500 hours somewhere else to maintain the 600 hour minimum, costing \$250,000 annually at \$500 per hour, not including crew travel and living costs nor lost productivity. The 600 hour minimum should be removed.

Document 1:

ATA STIG Response to FAR Part 60 NPRM

(Docket Number: FAA-2002-12461)

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The industry requires the use of flight training devices throughout the world. Our industry has been focused on acquiring bilateral agreements for years specifically so we have this option. By requiring 600 hours per year of use on a particular simulator the FAA will severely impact our ability to control training costs and restrict the needed flexibility that those additional simulators would offer. The "Regulatory Evaluation Summary" does not address these very real costs. What is the justification for this requirement? Whether we use it for six hours or six hundred the FAA burden of support is the same. The NSPM should substantiate their reasons for this requirement. If their only reason is that they do not want to use resources to maintain certification on low use simulators than they should propose passing along the cost of an annual evaluation on to the sponsor. The choice then becomes ours and not the NSPM.

United Airlines opposes any hour-based minimum usage requirements for continuing qualification of an FSD. There is no precedence for this in aviation. As an example, United Airlines can keep an aircraft on the ground indefinitely as an operational spare aircraft with no penalty as long as the required inspections are completed. Also, an airman may not fly for more than two years, yet maintain currency by simply receiving the required bi-annual flight training from any qualified flight instructor.

The specific requirement that an FSD be used 600 hours annually in the sponsor's FAA-approved training program will harm United Airlines financially. While United Airlines uses all of our FSDs in excess of 600 hours annually, the FSDs on which we sell time that represent aircraft no longer operated by United Airlines are rarely used more than 600 hours annually in an FAA-approved training program supplied by United Airlines. The provisions set forth in this section could prevent United Airlines from selling time on dedicated contract training FSDs.

Recommendation: Remove the 600 hour rule.

While our intention is to have this rule eliminated, we recognize the Administrator concerns with respect to the expenditure of resources to maintain certification on simulators that are not used. While we believe there should be no minimum hourly requirement, we do see the need for justification when the NSPM is asked to maintain certification on an FSD that may not be used for an extended period of time. For this reason we propose the following language replace the applicable sections of 60.7.

60.7 c (1) "Beginning 12 calendar months after the initial qualification of the FSD and every 12 calendar months thereafter, the FSD must have been used within an FAA-approved flight training program for the aircraft type or set of aircraft."

60.7 c. (3)(b) "If the simulator is not used as described in paragraphs (c)(1) and (2) of this section within the additional 12 calendar month period, the simulator reverts to a non qualified status. The sponsor may petition the NSPM to restore qualification as described in section 60.29.

ITEM # 43

Page # 60304

60.7 (c) (3)(ii)

Discussion:

The ATA opposes any attempt to require that an FSD remain out of service for any enforced period of time. At worst, the Sponsor's qualification should be removed, not the FSDs. In any event, there is no appeal process; it is unclear that the provisions of §60.29 apply. Too, there is

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no early reinstatement process, should the Sponsor have reason to begin using the device and meet the 600 hour usage requirement. Finally, there appears to be no process to reinstate the device after the imposed 12 months out of service other than to request an initial evaluation under §60.15.

Recommendation:

If an hourly use requirement remains in the rule, this paragraph should be changed to revoke the sponsorship, not the FSD qualification. Provisions must be made for appeal, early reinstatement, and a shortened reinstatement evaluation.

ITEM # 44

Page # 60304

60.9 (a)

Discussion:

ATA believes that Sponsor should make the FSD itself available to the NSPM for inspection as soon as practicable without disrupting training. Not allowing an operator or independent training facility time to re-arrange their training schedule will serve no purpose to the FAA or the public interest other than disrupting critical crew training. In many cases, schedules are in place that do not allow for deviations without additional financial impact. Notice of twenty-four hours or more should be required.

If it is the intent of the NSPM to also claim the authority to conduct an “emergency” inspection of an FSD that does disrupt training, a paragraph should be added to this section outlining guidelines for when such an emergency inspection might be required.

This should be applicable to those FSD that are directly under the sponsor’s control, and not applicable to those FSD where the sponsor is not the operator of the FSD. For example if an US carrier is the sponsor of a simulator in Singapore. They could not immediately produce the records and documents listed since all these items belong to the owner of the simulator and the records and documents are located in Singapore.

Recommendation:

Change paragraph 60.9(a) as follows:

- (a) The sponsor must allow the NSPM upon request to inspect the FSD, including all records and documents relating to the FSD, to determine its compliance with this part.
 - 1) The sponsor must make available all records immediately except for those which are in or on the FSD which must be surrendered at the next break in training.
 - 2) The sponsor must make the FSD available at the earliest time that would allow for rescheduling of training but in no case will this exceed 48 hours.
 - 3) If the sponsor fails to allow the NSPM to inspect the FSD, and all records and documents relating to the FSD, the sponsor may not allow the FSD to be used for flight crew member training or evaluation or for obtaining flight experience to meet any of the requirements under this chapter.

ITEM # 45

Page # 60304

60.9 (b) (1)

Document 1:

ATA STIG Response to FAR Part 60 NPRM

(Docket Number: FAA-2002-12461)

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Discussion: This "mechanism" is the maintenance log. The critique system being proposed is a needless duplication of effort.

Item 60.9 (b)(1)&(2) propose that the sponsor establish a mechanism in order for certain persons to provide comments regarding each FSD and its operation. The mechanism is to provide for receipt of those comments, provide for the examination of each comment, provide for the classification of the content of each comment, provide for the determination of importance of each comment, and take appropriate action.

The primary requirements of FAR 60 are targeted towards an improved simulation training tool and environment by establishing specific measurable performance standards and establishing QA monitoring programs to ensure compliance. The basis for compliance and measurement are standards and data.

The proposed mechanism described in 60.9(b)(1)&(2) to solicit comments does not make good practical sense as it provides a method to mix a myriad of personal opinions into the established standards and data based criteria. The proposed rule further dilutes each sponsors technical capabilities by tying up valuable resources to receive, examine, classify, judge, take action, and track each comment.

Sponsors will have a difficult time dealing with opinions, while regulators will find it difficult to enforce compliance. One could envision a scenario occurring in which an FSD is qualified one day followed by a trainee registering a comment the next day that states "the simulator pitch is more sensitive than the aircraft". Is the trainee correct? Did the trainee have difficulty on the check ride? All Sponsors, in particular air carriers, would have their operating instructor/check airman personally evaluate a trainees verbal comment and initiate a logbook discrepancy if they believed further action might be required.

Item 60.19 requires certain actions be accomplished on a recurring basis that include QPS performance demonstrations and objective tests, functional preflights, maintenance of a discrepancy log, NSPM recurrent evaluations, and continued maintenance on the FSD. In addition, the proposed rule requires the Sponsor to establish an NSPM approved QA program and keep the FSD up to date with data package updates.

FAR 60 contains sufficient requirements to guarantee the continuous performance of each FSD. A requirement for comments (i.e., personal opinions) is redundant, impractical to manage and regulate, and has no place in a system based upon standards and data.

Recommendation: Remove the requirement to collect and action comments.

ITEM # 46	Page # 60304	60.9 (b) (1)(i)
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Discussion: This requirement should be limited to the instructor and/or evaluator conducting or observing training and checking. The QA program places enough of a burden on the maintenance staff without having to address every whim of a student. If he or she has a comment or suggestion it should be directed through their respective instructor/evaluator for entry in the log-book.

Document 1:

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(Docket Number: FAA-2002-12461)

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Recommendation:

Remove:

(i) Flight crewmembers recently completing training or evaluation or recently obtaining flight experience in the FSD;

ITEM # 47	Page # 60304	60.9 (b) (1)(iii)
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Discussion: This is not practical for those FSD that are not directly under the sponsor's control. For example a US operator who is the sponsor of a simulator in Singapore cannot be expected to obtain comments from all the Owners technicians performing work on the SIA simulator, nor can they be expected to take action on those comments.

Recommendation: This should not be applicable to those FSD where the sponsor is not the operator of the FSD.

ITEM # 48	Page # 60304	60.9 (b) (2)
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Discussion: No action at times may be the "appropriate action". It appears that this paragraph is saying that the sponsor must act on every suggestion and this could take up an inordinate amount of time.

Recommendation: Change wording of paragraph.

ITEM # 49	Page # 60304	60.9 (b) (3)
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Discussion: The cost section mentions a letter sent four times a year. What is this letter supposed to say? The rule has no mention of this letter. Air Carriers have liaison with the manufacture of the aircraft they fly and the flight training department maintains liaison through their company aircraft engineering and maintenance. This should be sufficient. For independent training centers there should be more specific direction on what the FAA deems as a liaison. How do they meet this requirement without an additional financial burden?

Recommendation: Delete this paragraph.

ITEM # 50	Page # 60304	60.9 (b)(4)
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Discussion: Allow for the electronic posting of the statement. For example it could be a page on the electronic log sheet used for that FSD. Not all FSD have walls and room around the FSD could be at a premium.

Recommendation:

Change the paragraph to read:

(4) Post or have electronic access to the Statement of Qualification issued by the NSPM at a location that is obvious and convenient to all users of the FSD.

ITEM # 52	Page # 60304	§ 60.11(d)
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Discussion:

Document 1:

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(Docket Number: FAA-2002-12461)

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Specific Industry Comments:

It will be impossible for the FSD to operate with the “same software and active programming” that was evaluated by the NSPM. After the initial eval and each recurrent eval, the operator continues to make software changes to improve the utility of the training device (adding malfunctions and features), to fix faults, to improve reliability and maintainability, and to keep the simulator current with the aircraft. Other sections in this Part 60 deal with how changes are to be evaluated and monitored by the NSPM. These are sufficient and do not need to be duplicated in this clause.

This should say “that was or is to be evaluated by” The NSPM is apparently unaware of the numerous changes that an operational simulator under goes throughout its life cycle. A statement that requires the same software and active programming that was evaluated by the NSPM is unsupportable. If the intention here is that there isn’t one load for FAA evaluations and one for flight training, then it should state that specifically. This statement leads one to believe that literally no change could be made without an FAA evaluation.

As worded, this paragraph implies that the FSD software and active programming must remain static between NSPM evaluations. One could also infer that the NSPM must evaluate every combination of engine and avionic software variation available in the FSD prior to that software being used for training. United Airlines believe that it is the intent of this paragraph to require that the NSPM evaluate the FSD using the current software and active programming used in the day-to-day training environment, with no effort being made on the part of the Sponsor to use a “special” load during the NSPM evaluation.

Recommendation: This clause should be deleted.

ITEM # 53-57

Page # 60304-5

60.13

DISCUSSION:

In the past, the sponsor has often been placed between the NSPM and the aircraft manufacturer with respect to meeting the objective data requirements specified in the applicable Advisory Circular. The tenor of this entire section is that the NSPM will continue to place the weight of the requirements on the sponsor who has no control over the data product. Rationale for concerns are presented by paragraph below, followed by **proposed new wording** for 60.13 at the end of the document.

Paragraph (a)

The requirement for aircraft manufacturers’ flight test data and all data developed after the type certificate was issued is too broad, impractical, and likely impossible to satisfy.

The aircraft manufacturer does not provide “all data” as part of a data package; rather, they only provide certain cases and sets of data. The flight test data package can consist of numerous volumes (particularly for older airplanes), only a portion of which are included in the QTG. The data the sponsor does have is available for review during the initial evaluation if a case is questionable; however, the logistics of submitting the entire flight test package to the NSPM are prohibitive.

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(Docket Number: FAA-2002-12461)

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Paragraph (b)

Some sponsors have on rare occasion used de-identified flight recorder data available from the aircraft onboard Flight Operations Quality Assurance (FOQA) data recorder. These data, usually an averaging of many flights within certain specified parameters, have been used to verify the handling qualities and performance of the FSD simulation where there is not a good match between the simulation and the manufacturer-supplied objective data in the Master Qualification Test Guide (MQTG). This paragraph, as written, makes no allowances for such data, limiting data types to engineering or flight test data.

Paragraph (d)

The sponsor has no direct control over the form and manner of data provided. This requirement should be placed on the aircraft manufacturer or the STC holder. The form and manner that is acceptable to the NSPM should be defined.

Paragraph (e)

This paragraph, as written, could be used to place the sponsor in a position to require the aircraft manufacturer to provide additional flight test data. This has been the case in the recent past and has resulted in sponsors continuing to carry data discrepancies that are years old. If the NSPM requires additional flight testing, that should be strictly between the NSPM and the data provider.

In addition, this paragraph could subject the sponsor to large costs to obtain data as required by the NSPM. This requirement seems inappropriate and too broad.

Finally, the phrase “certain FSD qualification requirements” is too vague and must be defined in the rule; or, as a minimum, guidance given in the appropriate QPS information section.

Paragraph (f)

If each sponsor follows this requirement, the NSPM will receive many notifications from all the various sponsors whenever a common change occurs. This requirement goes to such a low level that ALL aircraft changes will have to be notified to the NSPM by each sponsor.

There are many types of data used in modern simulation; e.g., flight data, avionics data, 28-day navigational “Jepp” data updates, visual system database updates. This paragraph should clearly identify the scope of data covered by this notification process.

Suggestion

The data referred to in this section should be limited to those data that are sufficient to validate the performance, handling qualities, or other characteristics of the aircraft, including data related to any relevant changes occurring after type certification.

Further, other than paragraph (b), the sponsor should have no role in this section. It must be the responsibility of the aircraft manufacturer or other data provider to supply the appropriate validation data for use by the sponsor in the QTG.

Finally, as a minimum, the NSPM should pre-approve the airplane manufacturer’s or data provider’s validation data roadmap (see the ICAO document, *Manual of Criteria for the Qualification of Flight Simulators*, 2nd edition, Attachment D.) prior to allowing the data to be used for validation of an FSD.

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(Docket Number: FAA-2002-12461)

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Paragraph (e)

The phrase “certain FSD qualification requirements” must be defined in the rule or, as a minimum, guidance given in the appropriate QPS information section.

Recommendation:

[Note: The red text and strikethroughs below indicate how the proposed paragraphs would differ from the current Part 60.]

PROPOSAL

It is proposed that Section 60.13 be reoriented, along the lines shown below, to place the burden for provision of an acceptable validation data package upon the airplane manufacturer or other qualified data provider, rather than the sponsor. Here are revised paragraphs, including a change in order, and an additional paragraph related to provision of validation data roadmaps:

Sec. 60.13 FSD objective data requirements.

(a) Except as provided in paragraphs (b) and (c) of this section, for the purposes of validating FSD performance and handling qualities during evaluation for qualification, the ~~sponsor must submit~~ validation data package provided to the NSPM ~~must include~~ the aircraft manufacturer's flight test data including ~~all~~ relevant data developed after the type certificate was issued (e.g., data developed in response to an airworthiness directive) if such data ~~results from~~ is the result of a change in performance, handling qualities, functions, or other characteristics of the aircraft that must be considered for flightcrew member training, evaluation, or for meeting experience requirements of this chapter.

(b) The ~~sponsor may submit~~ validation data package may contain flight test data from a source in addition to or independent of the aircraft manufacturer's data, ~~to the NSPM~~ in support of an FSD qualification, but only if this data is gathered and developed by that source in accordance with flight test methods, including a flight test plan, as described in the appropriate QPS. ~~If approved by the NSPM on a case-by-case basis, supplemental validation data could also be derived from flight recorder data available from the aircraft onboard Flight Operations Quality Assurance (FOQA) data recorder.~~

(c) The ~~sponsor may submit~~ validation data package may contain predicted data, ~~engineering simulation data~~, data from pilot owner or pilot operating manuals, or data from public domain sources acceptable to the NSPM for consideration, approval and possible use in particular applications for FSD qualification.

(d) The aircraft manufacturer or other qualified data provider must submit a description of the validation data plan, including data sources, for approval by the NSPM well in advance of preparation of the Qualification Test Guide (QTG). This description would typically be in the form of a 'validation data roadmap' (see the ICAO document, *Manual of Criteria for the Qualification of Flight Simulators*, 2nd Edition, Attachment D).

(e) ~~(d)~~ Data or other material or elements of the validation data package must be ~~submitted~~ presented in a form and manner acceptable to the NSPM.

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(f) ~~(e)~~ The NSPM may require additional validation data ~~to~~ if the validation data package does not support ~~certain~~ FSD qualification requirements.

~~(f) When an FSD sponsor learns, or is advised by an aircraft manufacturer or supplemental type certificate (STC) holder, that an addition to, an amendment to, or a revision of the data used to program and operate an FSD used in the sponsor's training program is available, the sponsor must immediately notify the NSPM.~~

(g) The aircraft manufacturer or supplemental type certificate (STC) holder must immediately notify the NSPM when an addition to, ~~an amendment to,~~ or a revision of the flight- or airplane systems-related data used to program and operate an FSD for a particular airplane model is available; and provide technical information about the data update to help the NSPM determine its significance for training.

ITEM # 57A	Page # 60305	60.13
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Deleted

ITEM # 57B	Page # 60305	60.14
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Discussion:

Reasonable advance notice is required for sponsor to arrange for special equipment/personnel.

Recommendation:

"When noticed by the NSPM, the sponsor must" should read as "When noticed by the NSPM at least one week in advance, the sponsor must"

ITEM # 57C	Page # 60305	60.14
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Discussion:

Definition of Special Evaluation:

Recommendation:

Special evaluation as described on QPS Appendix A paragraph 10b should be moved to Definitions in Attachment 4.

ITEM # 59	Page # 60305	60.15(b)
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Discussion:

The requirement to submit a request containing all of the items listed in this section is unnecessarily burdensome. Section (b) (2) requires a description of a procedure that should have already been accepted by the NSPM under the quality assurance program required by this rule. This is a duplication of effort.

Recommendation:

Document 1:

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The “statement” requirement outlined in section (b) (1) alone covers all of the requirements listed in this section. That statement along with the submittal of qualified QTG should be sufficient. We do not see the necessity for turning a request for an initial evaluation into a writing exercise, nor should it be a duplication of previous efforts.

ITEM # 59a (on top of 59A)

Page # 60305

60.15(b)(2)

Discussion:

Since QA program addresses relevant issues, this paragraph should not apply to sponsors with approved QA program.

Recommendation:

The statement that "the sponsor" should read as "For sponsors without approved QA program, the statement that the sponsor"

ITEM # 59A

Page # 60305

60.15(b)(3)(ii)

Discussion:

1. Instead of using forms of “equivalent” and “conform” in References 1, 2, 3, and 5 above, more reasonable terms should be used. See the following sample:

Sample that represents current language in References 1,2,3, and 5 above:

(3) A statement signed by at least one pilot who meets the requirements of paragraph (d) of this section asserting that each pilot so approved has determined that the following requirements have been met:

(i) The FSD systems and sub-systems function equivalently to those in the aircraft or set of aircraft.

(ii) The performance and flying qualities of the FSD are equivalent to those of the aircraft or set of aircraft.

(iii) For type specific FSD's, the cockpit configuration conforms to the configuration of the aircraft make, model, and series being simulated.

Reason: “Equivalent” and “conform” could be interpreted in their strongest sense, in which case the FAA is requiring pilots to make assertions in writing that they can not realistically support. This is particularly true in the case where pilots are required to make these assertions for aircraft types not yet issued a type certificate, a situation addressed in “paragraph (d).” Also, there are many operations tasks that pilots have never experienced in the aircraft, like a takeoff with an engine malfunction or a windshear encounter during approach. In these cases, it is not reasonable then to require pilots to assert that the FSD’s handling qualities are “equivalent” to the aircraft’s. Further, given the possibility of civil or criminal penalties, the pilots may not be willing to sign a statement at all.

2. As in Comment 1, instead of using forms of “equivalent” and “conform” in References 4 and 6 (i.e., Sample Letter of Requests) more reasonable terms should be used. Also, the terms in the rule, QPSs, and Sample Letters of Requests should be consistent. See the following sample:

Document 1:

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(Docket Number: FAA-2002-12461)

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Sample Letter of Request that represents current language in References 4 and 6:

:

Our pilot(s) (name) and (name), who is(are) qualified on (airplane type or set of airplanes), has(have) assessed the FSD and found that it conforms to the (sponsor name) (type or set of airplanes) airplane cockpit configuration and that the simulated systems and subsystems have been evaluated and found to function equivalently to those in the airplane (or set of airplanes). The above named pilot(s) has(have) found that the FSD represents the respective airplane (or set of airplanes) in accordance with the attached Configuration List. He/She(They) has(have) also subjectively assessed the performance and flying qualities of the FSD and state that it represents the airplane (or set of airplanes). He/She(They) has(have) not subjectively tested the FSD for those tasks on the attached Restrictions-to-Qualification list and we do not seek qualification in these areas.

Reason: See the reason given in Comment 1 regarding “equivalent” and “conform.” Also, note that “represents” is now used in the Sample Letter of Request. Although a reasonable term, it is not consistent with the rule or QPSs.

Recommendation:

A form of the term “adequately represents” should be used in References 1 – 6 instead of the terms pointed out in Comments 1 and 2 above. This term is reasonable, and its use will make the rule, QPSs, and Sample Letters of Requests consistent. Also, it follows the language the FAA uses on, for example, pages 60285 and 60286: 1) in the last paragraph on page 60285, “The findings of these [objective and subjective] tests indicate whether or not the FSD adequately represents the characteristics of the aircraft in the following areas:...,” and 2) in the first paragraph on page 60286, “A successful initial evaluation means that the NSPM agrees with the sponsor’s findings that the FSD is an adequate representation of the aircraft.”

The suggested changes then are as follows:

Changes to language in References 1,2,3, and 5:

(3) A statement signed by at least one pilot who meets the requirements of paragraph (d) of this section asserting that each pilot so approved has determined that the following requirements have been met:

- (i) The performance of the FSD systems and sub-systems ~~function equivalently to~~ adequately represent those in the aircraft or set of aircraft.
- (ii) The performance and flying qualities of the FSD ~~are equivalently to~~ adequately represent those of the aircraft or set of aircraft.
- (iii) For type specific FSD's, the cockpit configuration ~~conforms to~~ adequately represents the configuration of the aircraft make, model, and series being simulated.

Changes to Sample Letter of Request in References 4 and 6:

Our pilot(s) (name) and (name), who is(are) qualified on (airplane type or set of airplanes), has(have) assessed the FSD and found that it adequately represents ~~conforms to~~ the (sponsor name) (type or set of airplanes) airplane cockpit configuration and that the performance of the

Document 1:

ATA STIG Response to FAR Part 60 NPRM

(Docket Number: FAA-2002-12461)

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simulated systems and subsystems have been evaluated and found to adequately represent ~~function equivalently to~~ those in the airplane (or set of airplanes). The above named pilot(s) has(have) found that the FSD adequately represents the respective airplane (or set of airplanes) in accordance with the attached Configuration List. He/She(They) has(have) also subjectively assessed the performance and flying qualities of the FSD and state that it adequately represents the airplane (or set of airplanes). He/She(They) has(have) not subjectively tested the FSD for those tasks on the attached Restrictions-to-Qualification list and we do not seek qualification in these areas.

ITEM # 60

Page # 60305

60.15 (b) (4)

Discussion:

The requirements outlined in 60.15b prevent an operator from requesting an initial evaluation until all of the referenced tasks, systems, and tests are complete and functional. Taking into account the present delays in scheduling initial evaluations, it does not allow as part of a "request for an initial evaluation" the operator to list items that, for whatever reason, cannot be tested at the time of the submittal. Without a vehicle to submit a request before "all tasks, systems, and tests can be completed" our project schedules will extended by several months. This will add a significant financial burden to every certification project.

Recommendation:

Our recommendation would be to change the language in paragraph (4) to read; "A list of all of the operations tasks or simulator systems in the subjective test appendix of the appropriate QPS for which the FSD has not been subjectively tested or for which qualification is not sought."

Additional Comments: The NSPM seems to indicate in the virtual public forum that they understood the concern here and may possibly modify the "letter of request" format.

ITEM # 61

Page # 60305

60.15 (b) (5)(iv)

Discussion:

It appears that this list will define, at least in part, the equipment that must be kept calibrated in accordance with Appendix A, §5.f.(20) of this Part (and the corresponding section and paragraph in Appendix B). Most new FSDs have internal test equipment built into them (e.g., I/O devices: D-to-A, A-to-D; sensors; test software) in addition to the traditional external test equipment. Most of the internal test equipment would have to be removed to be calibrated in the traditional sense. The process by which internal test equipment is calibrated and adjusted for accuracy must be carefully considered or undue expense will result.

Recommendation:

For integral test equipment, allow the sponsor to develop repeatability tests with tolerances as part of a quality system [App A, 5.f.(20)].

ITEM # 61A

Page # 60305

60.15(b)(5)(iv)

Document 1:

ATA STIG Response to FAR Part 60 NPRM

(Docket Number: FAA-2002-12461)

Note: See STIG Copy of NPRM with circled reference numbers submitted to the docket as separate document. This will assist in guiding the reader to the specific Federal Register page for comments related to the numbered items.

Recommendation:

The description of "the equipment" should read as "The list of the equipment"

ITEM # 61B

Page # 60305

60.15(b)(5)

Discussion:

For completeness, the following should be added as item (b)(5)(v) and (vi).

Recommendation:

(b)(5)(v) - Compliance with QPS Appendix Attachment – 1 General Simulator Requirements.

(b)(5)(vi) - Compliance with QPS Appendix Attachment – 3 Subjective Tests

ITEM # 62

Page # 60305

60.15(c)(1)

Discussion: The definition of what constitutes a *published* change or new document is unclear, in light of the fact that there are now many, many ways of publishing material.

Recommendation: ATA proposes that the NSPM be required to advise all sponsors, separately and individually, of such publication in whatever means it deems appropriate, with the additional requirement that the NSPM be responsible for seeking and positively tracking confirmation of receipt from each sponsor via a non-automated system. If this is not acceptable to the NSPM, then the flexibility of publication method must be eliminated, and a single publication method must be specified in detail, so that sponsors know how to get such advisement.

ITEM # 63

Page # 60305

60.15 (c) (1)

Discussion:

Thirty days is not adequate to fully evaluate a published change and determine the best course of action for the sponsor. They may well prefer to meet the new standard but the effect will have to be weighed against fiscal as well as other considerations. The proposed change would allow for a notification to the NSPM that a simulator is on order and for an additional 90 days to evaluate the effect before submitting their request.

Recommendation:

Change paragraph (ii) to allow for time to evaluate the change and its overall effect.

(ii) **Within 90 days from that notification** requests that the standard in effect at the time the order was placed be used for the evaluation for initial qualification.

ITEM # 64

Page # 60305

60.15 (d) (2) and (3)

Issue: Requiring current qualification for simulator test pilots is both too restrictive and cost-prohibitive.

Discussion: This requirement is too restrictive in that many airlines do not use line pilots with current qualifications as simulator test pilots since it is too expensive to maintain these personnel on staff. In the absence of evidence that non-qualified test pilots have heretofore been

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ATA STIG Response to FAR Part 60 NPRM

(Docket Number: FAA-2002-12461)

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inadequate, allowances must be made to allow the sponsors to continue to use pilots who do not maintain qualification. It is more realistic to require simulator test pilots to have been qualified at one time or other, perhaps even requiring a minimum time period of continuous qualification, in any aircraft similar in type.

Given this objection, there arises concern regarding clause 60.15 (d) (2), which grants complete veto power of simulator test pilot selection to the TPAA. Such power could conceivably be used by the TPAA to force the sponsor to use a line pilot, or even a specific individual. This is an unusual and unacceptable amount of power for a regulatory authority to yield over a business in a situation in which historical evidence does not exist to support the necessity of such a provision.

Recommendation: Reconsider the wording of this clause.

ITEM # 65

Page # 60305

60.15 (b)(4)

Discussion:

The sample Statement of Qualification, Qualified/Non-Qualified Tasks contained in App. A, Attch. 5, Fig. 4B is purported to be an exhaustive list of tasks and systems for which the specified simulator is qualified. The concept of requiring such a list is fraught with problems, such as mixing tasks with systems with maneuvers, yet ignoring whether any of these will support a user's procedures.

First, there are many items listed that are neither tasks nor systems. Thrust response [item B.4.(a)] is a subjective evaluation of the objective tests for engine acceleration and deceleration, not a task or system. A representative list of non-task/system subjective tests are shown below:

- ground handling [B.4.(c)]
- brake operation [B.4.(e)]
- airplane acceleration [C.1.(e)]

Second, while many failure modes are listed (e.g., pitch trim malfunction [E.3.(c)]), many are missing, such as fuel system failures (e.g., fuel imbalance training), FMC failures (standby navigation procedures), and APU malfunctions (fire, hot start, hung start) to name only a few. What are the operational requirements of the listed items J.1.-26, 28-29?

Third, many types of aircraft equipment or maneuvers are simply listed. For example:

- TCAS [D.2.(v)]
- VOR [E.1.(a)(ii)]

Simply indicating that an FSD has a qualified TCAS system gives no useful information. One needs to know how the TCAS operates (specific scenarios, etc.) in the FSD to know for what tasks the FSD may be used to train. Similarly, simply listing VOR as a type of non-precision approach gives little useful information. One may wish to know whether VOR refers to the traditional step-down approach; a constant descent angle approach, the type to which many major carriers are moving; or the more advanced VNAV non-precision approach, which requires line-selectable, non-precision approaches and a unique operational capability of the FMC not available in all FSDs.

Document 1:

ATA STIG Response to FAR Part 60 NPRM

(Docket Number: FAA-2002-12461)

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Fourth, many operators will have training requirements beyond what is listed in App. A, Attch. 3.2, List of Operations Tasks. In order not to be in violation of §60.15(b)(4) or §60.16(a)(1)(i), it appears that the sponsor must list all tasks from their FAA-approved training programs as well as those tasks from the approved training programs of all contract users.

Fifth, any list of approved tasks will likely lead others to believe that they cannot train any task beyond what is listed in this Statement of Qualification. In the Virtual Public Meeting, the NSPM states, "Any motivation of the sponsor to add tasks to the qualified list would be sufficient to adjust the list." Unfortunately, that motivation will only come from the sponsor's desire to use this list as a marketing tool since it will have no other value to the sponsor.

Sixth, the Qualified/Non-Qualified Task form, App. A, Attach. 5, Fig. 4B, itself is linked to the QPS List of Operations Tasks, "The following are those items listed in the Airplane Flight Simulator Qualification Performance Standards (QPS), FAA-S-120-40C...indicating what tasks and systems are qualified and what tasks and systems are not qualified."

The list includes TCAS [D.2.(v)] but not predictive windshear (PWS).

By what regulatory authority may the sponsor modify this list?

Seventh, the NSPM has no basis on which to approve an FSD to be qualified for a specified task. The ATA is not aware of any master task analysis and media analysis on which the NSPM can make this determination. While the linkage between required tasks and FSD level was previously determined by NSPM and presented in the Table of Functions and Subjective Tests (e.g., AC 120-40B, App 3), it was at least a known quantity. Decoupling the required List of Operations Tasks from the FSD level leaves the "task qualification" determination up to the subjective estimation of the particular NSPM evaluator.

Recommendation:

The ICAO document *Manual of Criteria for the Qualification of Flight Simulators* (2nd edition) and the latest JAR-STD 1A and 1B both link functional and subjective test requirements to the FSD level. The ATA sees no justification for the NSPM's deviation from this philosophy.

The NSPM should harmonize the List of Operations Tasks contained in Attachment 3 of each QPS with the appropriate Table of Functions and Subjective Tests contained in the respective JAR-STD, which, for airplanes, is based on the 2nd edition of the ICAO document *Manual of Criteria for the Qualification of Flight Simulators*.

The requirement for the table of Qualified/Non-Qualified tasks should be deleted.

ITEM # 65A	Page # 60305	60.15(g)(6)
Deleted		
ITEM # 66	Page # 60306	60.16

Paragraph (a) A currently qualified FSD is required to undergo an additional qualification process if a user intends to use the FSD for meeting training, evaluation, or flight experience requirements of this chapter beyond the qualification issued to the sponsor.

Document 1:

ATA STIG Response to FAR Part 60 NPRM

(Docket Number: FAA-2002-12461)

Note: See STIG Copy of NPRM with circled reference numbers submitted to the docket as separate document. This will assist in guiding the reader to the specific Federal Register page for comments related to the numbered items.

Paragraph (a) (2) (c) The FSD is qualified for the additional uses when the NSPM issues an amended Statement of Qualification in accordance with 60-15 (f).

Discussion:

Paragraph (a) implies that any additional 'training, evaluation, or flight experience requirements' not listed on the FSD "Statement of Qualification" will require that an extensive amount of paperwork be submitted to the NSPM in order to generate a new 'Statement of Qualification' even if this new training, evaluation, or flight experience requirement is valid within the initial qualification level of the FSD and approved by the POI.

Additional comment

Second comment is the reference to Paragraph (a) (2) (c) to the amending of Statement of Qualification in accordance with 60-15 (f)

Should this referenced to 60-15 (g), which is the paragraph that addresses the Statement of Qualification.

Recommendation:

This could present a significant delay in implementing a new or updated training program simply because the newer program would now be addressing items fully functional in the FSD but 'not on the list'.

The description (or limitation) to what can still be approved by the POI should be addressed. The addition of previous Advisory Circular language that clarifies required NSPM notification to software program or hardware changes that might impact flight or ground dynamics is recommended.

ITEM # 67

Page # 60306

Combined into #69

ITEM # 68

Page # 60306

Combined into #69

ITEM # 69

Page # 60306

60.17 (a) & (b)

Discussion: Paragraphs (a) and (b) appear to be at odds with each other. In paragraph (a) the FAA appears to be allowing for "grandfathering" along the terms that have been used by the industry and the FAA for the past twenty or thirty years. However, in paragraph (b) requiring the Statement of Qualification implies that the "grandfathering" is only good for the six year period. When the wording in the preamble of the document on pages 60291 and 60292 is included, the statement "...FAA wants to encourage industry to use the most up to date standards and in some cases will mandate the use of new standards by issuing an FSD Directive..." opens the door for the FAA to remove the "grandfathering" rights. Clearly this would have a

Document 1:

ATA STIG Response to FAR Part 60 NPRM

(Docket Number: FAA-2002-12461)

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devastating effect on the industry. If the FAA's intent is to merely prepare the paper document (i.e. the Statement of Qualification) then why would the six year period be allowed?

THE ATA STRONGLY OPPOSES REMOVING "GRANDFATHER" RIGHTS FOR PREVIOUSLY QUALIFIED FSDs.

Specific Industry Comments:

This paragraph effectively removes all current grandfather rights from all presently qualified FSDs at the 6 year point and is unacceptable. The NSPM offers no evidence that the current generation of FSD will provide inadequate training just because they are over 6 years old.

Does this or does this not this mean the trainer must meet the new QPS!

Six years is insufficient time to phase out the sponsor's existing simulators' grandfather rights. In six years this would require us to re-qualify B-727 and DC-10 simulators. Neither aircraft is manufactured anymore and the manufacturer is in no position to support new data requirements. Obtaining new flight test data to comply with new QPS standards would likely cost more than \$1,000,000 per type. The FSD's would require massive updates, including new host computers, new visual systems, and a complete rewrite of the existing software. The FSD's would then be required to go through an intensive testing cycle followed by the NSPM's new initial qualification. At that point, we will have spent millions of dollars to update old simulators whose economic life is very short. We would have to perform similar work on "middle-aged" simulators to meet the new requirements. All of this work, and time out of service would be very expensive to sponsors. The time period should be set at 15 years, or phased-in in such a manner as to eliminate the financial impact on the sponsors. This clause must also take into account the transfer of a qualified FSD from one sponsor to another. In these cases, the grandfather rights should remain with the FSD and the transferred FSD should not be required to be qualified to the new requirements. For example, if airline A sells all of their 737's including their previously qualified simulators to airline B, then the qualification of the FSD's should be maintained.

Recommendation:

- Clarify what is intended by the requirement to obtain a Statement of Qualification within six years.
- **THE ATA STRONGLY OPPOSES REMOVING "GRANDFATHER" RIGHTS FOR PREVIOUSLY QUALIFIED FSDs.**

ITEM # 70

Page # 60306

60.17 (c)

Discussion: The intent of this paragraph is unclear. In addition, it refers the sponsor to 60.27 which contains a reference to a paragraph that has no relevance to qualification or requalification of an FSD (ə 60.9(b)(4)). This explanation simply states what we have known and objected to for years. The FAA is trying to force our industry to expend resources on new technology that may or may not increase training quality simply to reduce their workload. They should not be in the business of encouraging or discouraging the use of advanced technology. They should set minimum standards and procedures for the industry to follow. Whether we can meet those

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ATA STIG Response to FAR Part 60 NPRM

(Docket Number: FAA-2002-12461)

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standards with or without investment in new technology is our determination to make not the FAA's.

An example:

Company "ABC" conducts training in an older certified simulator that continues to pass certification despite its age. Company "CBA" who owns and operates the simulator will not commit resources to upgrade or modify the simulator because market conditions do not warrant it. Company "ABC" would like to buy a foreign owned and operated simulator and upgrade it to the point where it will be a significant improvement upon what they are using now. Because this simulator has never been certified and the resources required to meet the current standards are too costly, they cannot improve their training program by purchasing and upgrading this simulator. They are forced to continue to use the older simulator and hence, are effectively restricted by regulation from upgrading their pilot training program.

Recommendation: Provided that the "lineage" for the FSD can be traced to its original qualification then the requalification evaluation should be permissible under the document used for the original evaluation. "Grandfather" rights should not be removed.

ITEM # 71

Page # 60306

60.17 (e)

Discussion: A sponsor may request that FSD be downgraded, and such a downgrade is easily effected. The process for that FSD to regain its previous qualification level is not addressed and it should be. The FSD should be evaluated to the same qualification standards for which it was previously qualified in order to regain its previous qualification level. It should not be evaluated to any newer standards including these new Part 60 standards, unless the sponsor so requests. For example, if a simulator is temporarily downgraded to a Level 7 while the motion system is being repaired, the sponsor should not have to requalify the simulator to a new standard once the motion system repairs are completed.

Recommendation: Modify the paragraph to allow for the FSD to be returned to its original level under the document against which it was originally qualified.

ITEM # 72

Page # 60306

60.19

Section 60-19 Inspection, recurrent evaluation, and maintenance requirements

Paragraph(s) (a) (4) through (a) (5) ((iii))

Referenced paragraphs of Part 60

(4) Maintains a discrepancy log.

(5) Insures that, when a discrepancy is discovered, the following requirements are met:

- (i) A description of each discrepancy is entered in the log and remains in the log until 30 days after the discrepancy is correct as specified in 60-25(b) (Operation with missing, malfunctioning, or inoperative components)
- (ii) A description of the corrective action taken for each discrepancy maintains and the date that action is taken must be entered in the log. This entry concerning the corrective actions is maintained for at least 30 days

Document 1:

ATA STIG Response to FAR Part 60 NPRM

(Docket Number: FAA-2002-12461)

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- (iii) The discrepancy log is kept in a form and manner acceptable to the Administrator and is kept in or immediately adjacent to the FSD

Discussion - 1:

The title of this section is confusing by including the word "Inspection" which implies preventative maintenance. What really is intended is completing the required recurrent tests as specified by paragraph(a) (1).

Recommendation – 1:

Required QPS testing would be a good change in the title, thereby removing any chance for confusion in interpretation of the intent of this section,

Discussion - 2:

Under SQAP 2000, Paragraph 4.2 (Control of Quality Records) quality records must be maintained for at least 24 calendar months. Part 60 says 30 days after correction. Need to know what the new rules will be.

Define specifically what constitutes a discrepancy that must be maintained on a list in or immediately adjacent to the FSD. Historically, most FSD departments have posted 'all discrepancies that have the possibility of impacting training or checking'. There exists the possibility that any number of 'discrepancies', generated for a number of different reasons exist on any specific FSD and most of them have no impact at all on cockpit operation. Every 'discrepancy' is logged and saved as a historical record and can be pulled up and monitored individually.

If the intent is for every discrepancy written by the flight crew, preflight, observer (as per Part 60), just so that 'they' can monitor the progress and corrective action for specific write ups, this will greatly increase the list we have to 'post'

If only those open discrepancies that impact 'training or checking' are required to be posted, then we will duplicate the requirement for posting the 'missing, malfunctioning or inoperative components and now everything must be repaired in 7 days (or 30 days depending on what you read and where. But why have two lists??

Recommendation – 2:

Define why and what is expected to be found on the specifically identified lists. Almost all of the new documentation required under Part 60 evolved or was taken directly from SQAP 2000. The users need to know which parts, if any, of SQAP 2000 are going to be in effect.

ITEM # 73

Page # 60306

60.19 (a)(1)

Discussion: It is unclear which "performance demonstrations" in Attachment 1 the paragraph is addressing. Where actual objective tests are required they are included in Attachment 2. Where Statements of Compliance tests are included in Attachment 1 they are included in the QTG and should be run annually.

Document 1:

ATA STIG Response to FAR Part 60 NPRM

(Docket Number: FAA-2002-12461)

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The order that tests are run in generally has no effect. For example, nothing is gained by running one takeoff per quarter versus all of them in one quarter.

Allowing the NSPM total freedom over the “four evenly spaced inspections” could yield additional costs and lost training time for the sponsors. For example, sound tests are normally all done in one quarter since it requires a complex test setup using special equipment. Should the NSPM decide that the sound test should be spread “evenly” over the entire year, then the sponsor will have to perform that setup and testing at each interval. Similarly, the same applies for motion, visual, and some other tests. The “four evenly spaced inspections” also does not seem practical. This would require that the tests be done at month 3, 6, 9, and 12 each year. If, at month 3, the sponsor experienced a device failure and was unable to complete the inspections until month 4, then he would literally be in breach of this rule and subject to criminal and civil penalties.

The NSPM should not have approval rights, only review rights. The exact timing of the inspections should be left up to the sponsor. The section does not address the means of redressing a failure to perform the inspections at the “evenly spaced” intervals.

Recommendation: The order in which the QTG tests are run should be left to the discretion of the sponsor.

Delete “The term four evenlyevenly spaced” and replace it with

“The performance demonstrations and objective test sequence, and contents of each inspection in this sequence will be developed by the sponsor and followed through in its QA program.”

ITEM # 73A

Page # 60306

60.19(a)(1)

Discussion:

”In deciding the test sequence (vi) Other FSD systems”. This part does not belong to the rule, being information.

Recommendation:

”In deciding the test sequence (vi) Other FSD systems”, should be removed from the rule and included in QPS information section.

ITEM # 74

Page # 60306

60.19 (a)(3)

Discussion:

The specific wording conflicts with some Sponsor’s operation. Sponsors may utilize an “operational day” that runs from other than midnight-to-midnight. In such a case, it is possible for an FSD to be scheduled for a period to start between 0000 and the end of the operational day. The preflight from the beginning of the operational day should still apply. Each FSD is preflighted prior to the beginning of the first period of use in each operational day.

Recommendation:

Change the wording of this paragraph to allow for performance of the FSD preflight to be based either on a calendar day or on an operational day, not to exceed 24-hours in length, as designated by the Sponsor.

Document 1:

ATA STIG Response to FAR Part 60 NPRM

(Docket Number: FAA-2002-12461)

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ITEM # 75	Page # 60306	60.19 (a)(3)
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Discussion: ATA sees no reason to require an operational preflight of an FSD that is not scheduled for use each 7 consecutive days. Paragraph (a)(2) of this section requires that a preflight be performed prior to the first period of any training day; given that the provisions of this paragraph are met, there is no added benefit to the Sponsor or user to perform a preflight each 7 calendar days on an FSD that is temporarily dormant. Occasionally an FSD is removed from service for short periods of time, to exceed 7 days, to perform project work or preventive maintenance. With an FSD out of service for such maintenance, the preflight required each 7 days could not be completed. Regardless, this paragraph will require additional administrative tracking with no added benefit to the Sponsor or user. As long as all of the other requirements of this Part are met, an FSD will be ready for use during any scheduled period.

Recommendation: Remove the 7 day rule as it is redundant.

ITEM # 76	Page # 60306	60.19 (a) (5) (i)
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Issue: Requiring sponsors to retain descriptions of cleared discrepancies in a log is an understandable requirement, but the wording of this clause can be construed to mean that discrepancies older than 30 days should specifically *not* be available in the log.

Discussion: ATA agrees that the historical merit of discrepancy logs is inarguable. Electronic discrepancy log systems offer even greater potential to everyone, including FAA and sponsor functionaries. The current wording of this clause could well serve to severely restrict the potential capability of such systems, if the NSPM chooses to interpret the 30 day requirement as an absolute number requiring 30 and only 30 days. Furthermore, it is unreasonable to expect that there would never be an event in which a discrepancy might continue to exist in the log on day 31, due to anomaly in either the electronic system or in human execution of procedure. Since the 30 and only 30 day interpretation would bear the force of law with attendant civil and criminal penalties, this wording should be corrected.

Recommendation: Change the wording to be “until at least 30 days”.

ITEM # 76A	Page # 60306	60.19(a)(5)(ii)
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Discussion:

”... action taken for each discrepancy and the date....” Should include name of the individual doing corrective action.

Recommendation:

”... action taken for each discrepancy and the date....” should read as ”... action taken for each discrepancy, and the name of individual and the date....”

ITEM # 77	Page # 60306	60.19 (a) (5) (iii)
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Issue: This clause grants full and unbridled veto power to the NSPM over the mechanics and nature of the sponsor’s discrepancy log system.

Document 1:

ATA STIG Response to FAR Part 60 NPRM

(Docket Number: FAA-2002-12461)

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Discussion: This clause gives the NSPM full veto power over a sponsor's log system, with no definition of what constitutes an acceptable system. If there are specific requirements which the NSPM intends to impose in regard to discrepancy log, they should be enumerated in appropriate parts of this Part 60. An open-ended NSPM veto power over sponsorship is neither acceptable from a business perspective nor rational from an air safety perspective.

Recommendation: Reconsider the wording of this clause.

ITEM # 78	Page # 60306	60.19 (b) (2)
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Issue: Requiring sponsors to initiate communications regarding scheduling logistics for FSD evaluations is not a logical process.

Discussion: The NSPM will certainly still be required to maintain resources and an internal process through which to manage scheduling of evaluators. Adding the extra step of having the individual sponsors start the process for each evaluation event achieves the sole result of generating more paperwork for both the NSPM and the sponsors. It is far more logical to retain the existing scheduling mechanics, but in any event, enacting into law what the details of the procedure will be is certainly undesirable for all parties.

Recommendation: ATA would be pleased to discuss ways to improve the existing scheduling mechanics to the benefit of both the NSPM and sponsors.

ITEM # 79	Page # 60306	60.19 (b) (3)
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Issue: This clause has no restriction on the amount of FSD time that the NSPM can use for the recurrent evaluations.

Discussion: It is reasonable for a sponsor who is acting in good faith to expect that the FSD will pass recurrent testing. It follows that such an operator is also a good business planner; therefore, it is reasonable that good-faith operators plan to use the FSD immediately after recurrent testing, as a matter of standard practice. However, such planning cannot be made if the NSPM has unpredictable and unbridled power as to the number of days that recurrent testing may take. Furthermore, ATA knows of no historical evidence that suggests that the traditional one day of scheduled device availability is in any way insufficient. The argument can be made, in fact, that less time is now needed than in the past due to testing automation for those tests which the evaluator chooses to have repeated during his visit. This suggested one day limit, however, should not be construed to mean that the evaluator may not conduct additional testing or retesting should the sponsor be ready and able to make the FSD available and the evaluator is ready and able to accommodate such additional scheduled time.

Recommendation: Retain the current practice of specifying the testing period to be one day, unless as mutually agreed by the evaluator and sponsor.

ITEM # 80	Page # 60307	60.19 (b) (4)
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Document 1:

ATA STIG Response to FAR Part 60 NPRM

(Docket Number: FAA-2002-12461)

Note: See STIG Copy of NPRM with circled reference numbers submitted to the docket as separate document. This will assist in guiding the reader to the specific Federal Register page for comments related to the numbered items.

Issue: This clause has no restriction on how often the NSPM can perform recurrent evaluations on an FSD.

Discussion: This clause grants the NSPM full power over how often it wishes to impose recurrent testing. While it is true that the NSPM can not change this frequency at its own desire due to the fact that it is specified in the MQTG, it is also true that the NSPM has full authority over the approval of the MQTG. As such, the NSPM has full power to impose any recurrent frequency it desires. ATA knows of no historical evidence that suggests that the traditional 6 month recurrent evaluation period is in any way inadequate. The FAA elected to switch all FSDs to a one year evaluation two years ago and to date the average number of FAA discrepancies has not changed.

Recommendation: Retain the current practice of a recurrent evaluation period of twelve months.

ITEM # 80A	Page # 60307	60.19(b)(6)
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Recommendation:

Add at the end “or within the timeframe mentioned in (b) (5)” for allowing training during the grace period.

ITEM # 80B	Page # 60307	60.19(c)
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Recommendation:

”... requirements of 60.15.” should read as “.... requirements of all applicable provisions of appropriate QPS.”

ITEM # 82	Page # 60307	60.21(b)
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Discussion: The number of factors that affect a new aircraft type or model is sufficiently complex and unpredictable that there should not be a simple 1-year death penalty on the interim qualification. This issue needs to remain as flexible as possible in order to facilitate new aircraft types and models, because to do otherwise will delay training to the point that too much training will be needed in too little time, resulting in decreased air safety, not increased.

Recommendation: Interim qualification should remain valid until the latest of the following events:

- one year after issuance of the interim qualification, unless specific conditions warrant a longer period as may be petitioned by the sponsor to the NSPM, or
- six months after the release of the final flight test data package, unless specific conditions warrant a longer period as may be petitioned by the sponsor to the NSPM.

These two above conditions are superceded in the situation in which the sponsor has applied for an initial qualification in accordance with 60.15 based on final flight test data package, in which case it remains valid until the initial qualification. The ATA proposes this more flexible approach to interim qualification due to the fact that (1) new aircraft types and models have shown themselves historically to be subject to widely varying changes in design and schedule

Document 1:

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(Docket Number: FAA-2002-12461)

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during development, and (2) the provisioning of the flight test data package, while often (but not always) under contractual control of the sponsor, is not under the actual management control of the sponsor, and as such the sponsor cannot be expected to be able to predict unforeseen program issues that even the aircraft designer cannot predict.

ITEM # 84	Page # 60307	60.23
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Incorporated into #85

ITEM # 85-95	Page # 60307	60.23
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Discussion: As written, paragraph 60.23 would place a severe burden on both the FAA and all FSD sponsors. The major problems with paragraph are the definition of what a "modification" consists of and when FAA notification is required.

Recommendation: Replace the entire paragraph with the following:

§60.23 Modifications to FSDs.

[Basic "modification" definition]

- (a) For the purposed of this part, an FSD is said to have been modified when:
- (1) Changes are made to either of the following that impact flight or ground dynamics or impact performance or handling characteristics of the simulator
 - (i) Software,
 - (ii) Hardware;
 - (2) Replacement of the host computer;
 - (3) Replacement of the motion, visual, or control loading systems (or sound system for FSD levels requiring sound tests and measurements).

[When a modification must be made]

- (b) When the sponsor determines that any of the following circumstances exist and determines that the FSD cannot be used adequately to train, evaluate, or provide flight experience for flightcrew members, the sponsor must modify the FSD accordingly.
- (1) The aircraft manufacturer or another approved source develops new data regarding the performance, functions, or other characteristics of the aircraft being simulated;

[FSD issuance]

- (c) When the FAA determines that FSD modification is necessary for safety of flight reasons, the sponsor of each affected FSD must ensure that the FSD is modified according to the FSD Directive regardless of the original qualification standards applicable to any specific FSD.

[Modification notification]

- (d) Before modifying a qualified FSD, as defined in paragraph (a) of this section, the sponsor must notify the NSPM and the TPAA as follows:
- (1) The notification must include a complete description of the planned modification, including a description of the operational and engineering effect the proposed modification will have on the operation of the FSD.

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-
- (2) The notification must be submitted in a form and manner as specified in the appropriate QPS.

[Using the modified FSD]

- (e) For circumstances other than those described in paragraph (c) of this section, the sponsor may not use, or allow the use of, or offer the use of, the FSD with the proposed modification for flightcrew member training or evaluation or for obtaining flight experience for the flightcrew member to meet any requirement of this chapter unless:
- (1) The sponsor has notified the NSPM and the TPAA of their intent to install the proposed modification and forwarded to the NSPM the results of all objective tests that have been re-run with the modification incorporated, including any necessary updates to the MQTG, and;
- (i) Twenty-one days have passed since the sponsor notified the NSPM and the TPAA of the proposed modification and the sponsor has not received any response from either the NSPM or the TPAA;
- (ii) Twenty-one days have passed since the sponsor notified the NSPM and the TPAA of the proposed modification and one has approved the proposed modification and the other has not responded;
- (iii) Fewer than twenty one days have passed since the sponsor notified the NSPM and the TPAA of the proposed modification and the NSPM and TPAA both approve the proposed modification.
- (iv) The sponsor has successfully completed any evaluation the NSPM may require conducted in accordance with the standards for an evaluation for initial qualification or any part thereof before it is placed in service.

[User notification]

- (f) When a modification is made to an FSD, the sponsor must notify each certificate holder planning to use that FSD of that modification prior to that certificate holder using that FSD the first time after the modification is complete.

[MQTG update]

- (g) The MQTG must be updated with current objective test results in accordance with §60.15(b)(5) and appropriate flight test data in accordance with §60.13, each time an FSD is modified and an objective test is affected by the modification. If this update is initiated by an FSD Directive, the direction to make the modification and the record of the modification completion must be filed in the MQTG.

ITEM # 97

Page # 60308

60.25 (b)

Discussion: The paragraph as written is way too restrictive and makes no provisions for components that are not required for training. In addition, as written, the paragraph makes no allowance for missing components that are not even required to be simulated.

As written, the paragraph would shut down all level 5 FTDs seven (7) days after the date of the final rule.

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(Docket Number: FAA-2002-12461)

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The rule as written would require the NSP to provide an inspector to consider/authorize continued operations on a 24/7/365 basis.

Tracking submittals and responses from the NSP will require significant manpower for major training centers.

Specific Industry Comments:

The rule says 7 days, the QPS says 30. Which is correct? Seven days is way too restrictive. Most Part 121 operators train 7 days a week and shutting down an FSD simply because the NSP is on a holiday weekend is not financially acceptable. The NSPM and the TPAA would have to make provisions for a weekend/holiday duty officer for the operators to comply with this requirement.

Not all components are required for training. For example there are cosmetic components, maintenance components and components that are used only for tests and evaluations.

Each missing, malfunctioning, or inoperative component must be repaired or replaced within 7 days. Failure to repair or replace the component within the prescribed time may result in loss of FSD qualification. Page 60308 (Sect. 60.25 (b))

This is not only impractical, it is impossible. First, there is no reference to cockpit instrumentation/ presentation (a more logical approach but impractical). Second, if the reference is to all components on an FSD, seven days is unrealistic (impossible). Clearly, a better definition is necessary. We suggest a reference to equipment required in the current training scenario.

The 7 calendar day limit is not always practical. If a simulator unique part is required, it can sometimes take longer than 7 days to obtain a new one or effect repairs. The NSPM must be capable of responding to requests to authorize deviation from this rule on a 24/7 basis since the requirement is based on 7 CALENDAR days. The NSPM must also be capable of responding quickly, i.e. within a few hours. The request will often come in the early hours of the morning, before the start of the training day. The rule should be written such that if no response to a request to authorize deviation from this rule is received from the NSPM within 2 hours, then it is granted. The term "may result in the loss of FSD qualification" is ambiguous. This seems too harsh a treatment if the issue is outside the sponsor's control, i.e. waiting for parts, or obtaining contractor expertise. Regaining qualification is not addressed either.

Imposing a 7-day requirement to correct all missing, malfunctioning, or inoperative components is unnecessarily restrictive and could require resources to be marshaled against a less important problem simply because of this artificial deadline. Because United Airlines' training facility currently operates 24 hours each day, 7 days each week, 363 days each year with over 40 FSDs, obtaining a waiver for each component that is missing, malfunctioning, or inoperative for each of those devices will be burdensome and ultimately restrict the operation of United Airlines. Since the office of the NSPM is not open on evenings, weekends, or government holidays, the NSPM cannot respond to the needs of United Airlines operating under this restriction. The NSPM must allow Designee authority

Recommendation:

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(Docket Number: FAA-2002-12461)

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-
- Delete the word "missing" from the paragraph.
 - Delete the last sentence of the paragraph.
 - There should be no time limit imposed by the NSPM for the repair or replacement of components.
 - Allow Designee authority under the appropriate circumstances

ITEM # 98	Page # 60308	60.25 (c)
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Discussion: This paragraph would require systems that are not simulated (ACARS, etc) to be placarded. Although the NSPMs financial analysis determined that it only takes 0.05 hours to placard, that didn't take into account the time it will take to remove the placard and the gum residue that will build up.

A literal reading of this paragraph would require that a Sponsor effectively dispatch each FSD each period. This would meet the letter of the requirement that each missing, malfunctioning, or inoperative component is placarded like the MEL procedures followed in line operations. This would require a maintenance technician to be at the ready when each FSD period is scheduled to end. To accomplish this would be an enormous financial burden for no perceived gain in training value. The additional requirement of this paragraph, to require that a list missing, malfunctioning, or inoperative components be readily available in or adjacent to the FSD for review by the FSD users should suffice for daily operations. Placarding missing, malfunctioning, or inoperative components discovered the previous day could practically be accomplished, but only during the FSD preflight

A component should not be "missing" from an FSD unless it is malfunctioning or inoperative. In this case the discrepancy should be documented in the discrepancy log required by 60.20. Therefore a separate list of the components is redundant.

Listing the "missing" components on a device where they are not required by the QPS seems to be excessive but the paragraph makes no provision for their omission.

The placard system for the malfunctioning or inoperative components is very time consuming and adds nothing to the training if the item is already documented in the discrepancy log which the instructor reads before training period starts.

Recommendation: Delete the entire paragraph.

ITEM # 100	Page # 60308	60.27 (a)(1)
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Discussion: This reference is wrong. It refers to 60.9(b)(4) which is the requirement to post the Statement of Qualification. This would seem to imply that if the sponsor does not post the Statement of Qualification, then the FSD loses its qualification.

It is unclear exactly to which reference the FAA is referring. Perhaps it is the 600 hour rule. This would be "60.7(c)(1)".

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(Docket Number: FAA-2002-12461)

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Recommendation: FAA determine what is the correct reference.

ITEM # 101	Page # 60308	60.27 (a)(3)
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Discussion: In the past, United Airlines has unbolted a simulator from the floor and slid it forward without disconnecting any wiring in order that we might slide a second simulator by. A literal reading of this paragraph would require that the first simulator is no longer qualified.

Recommendation: Change the wording of the paragraph to read: "...is permanently moved..."

ITEM # 102	Page # 60308	60.27 (a)(4)
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Discussion: The rule, as written, makes no allowance for even minor repairs or modifications of the FSD. Numerous routine maintenance and repair procedures require the FSD to be disassembled to an extent that it could not be used until reassembled.

Once an FSD is reassembled, obtaining FAA approval for returning the device to training will place a major burden on both the sponsor and the FAA.

Specific Industry Comments:

This paragraph would essentially mean that if a Moog valve on a motion jack is replaced then the FSD would lose qualification until either the NSPM or the TPAA approves returning the FSD to training. Again, this would require the NSPM and TPAA to provide duty officer for weekend/holiday approvals.

With this definition there is no consideration for how minor the disassembly or the time frame of the disassembly. There are many easily replaceable parts that if removed or replaced would meet this definition. This is an ongoing process to maintain a simulator.

This requirement is not practical, it does not seem to take into account the degree of disassembly that might be involved or the amount of time it was disassembled. For example, if a load unit is removed for repair or replacement, then the device is not usable for training during that time, and therefore, under this requirement, the FSD is no longer qualified and must be re-qualified. Even if the NSPM advises that an evaluation is not necessary, the delay in obtaining this advice will keep the FSD out of service until a response is received. This will require that the NSPM be able to respond on a 24/7 basis as repairs that require disassembly usually occur during the early morning hours. This requirement should be removed since the requirement for an evaluation would be driven by 60.23. It also imposes a burden on the NSPM that he will be unable to meet.

This is very vague. Need specifics of "disassembled". How does this work for the following examples?

Example-1: A leg on the motion system needs replacement. It is replaced, calibrated and associated testing completed during the normal maintenance time. Simulator is up and running next morning.

Example-2: All the tasks of Example-1 are done over a period of 24 hours.

Example-3: Like Example-2, but before start of work NSPM or TPAA was informed, but did not wait for approval, about the repair.

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ATA STIG Response to FAR Part 60 NPRM

(Docket Number: FAA-2002-12461)

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Example-A: Throttle quadrant in the simulator needs replacement. It is replaced, calibrated and associated testing completed during the normal maintenance time. Simulator is up and running next morning.

Example-B: All the tasks of Example-A are done over a period of 24 hours.

Example-C: Like Example-B, but before start of work, NSPM or TPAA was informed, but user did not wait for approval, before starting the repair.

Will this rule be applied to these six cases?

Recommendation: The ATA recommends that the paragraph be deleted as maintenance procedures are adequately addressed in the rule.

ITEM # 103	Page # 60308	60.27 (b)(1)(i)
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Discussion: As written, this paragraph would eliminate grandfather rights for older FSD's any time they are moved, repaired, or modified. This requirement would serve as a disincentive to maintain and update older simulators and would likely result in a lower quality of device.

Recommendation: This requirement should be changed so that the initial re-qualification contemplated should be in accordance with the qualifications standards that the FSD is or was most recently qualified under.

ITEM # 103A	Page # 60308	60.27(b)(1)(i)
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Discussion:

This paragraph should include contents of 60.17 (c), because it requires re-qualification based on current standards if more than 2 years have passed.

Recommendation:

Append contents of 60.17 (c), page 60306, to (b)(1)(i).

ITEM # 104	Page # 60308	60.27 (b)(2)
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Discussion: This paragraph would have the Sponsor serving two masters with respect to FSD qualification: the NSPM and the TPAA.

Recommendation: The lines of authority between FAA entities should be clarified.

ITEM # 105	Page # 60308	60.27 (c)
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Discussion: This paragraph is too vague. Unless some objective criteria are developed, a Sponsor could easily be at the mercy of the individual in the office of the NSPM who is tasked with making this decision on a particular day.

A minor repair that requires partial disassembly of a simulator could be done at the middle of the night. This would render the simulator unusable until permission is granted by the NSPM to return the simulator to service.

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(Docket Number: FAA-2002-12461)

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At either the NSP or TPAA level, the FAA does not have the background and expertise to make the decision as to when a significant modification or repair adversely affects the qualification of an FSD.

How would the FAA assess the "...care that had been taken of the device since the last evaluation."?

Recommendation: Unless otherwise required elsewhere by the rule, (for example: a missed evaluation) the restoration of qualification should be at the discretion of the sponsor.

ITEM # 106

Page # 60308

60.29

Discussion: The rule under this paragraph does not address "restoration of qualification"

The rule again blurs the lines of authority between the NSPM and the TPAA. Only the NSPM should have jurisdiction over the qualification of any FSD covered by this Part. The TPAA should have sole jurisdiction over the use of a qualified FSD in an FAA-approved training program.

Recommendation: Add as item (d) procedures for restoration of qualification for paragraph (a), (b) and (c), and qualification standards to be used for restoration of qualification.

Delete all reference to the TPAA as a "governing" entity under the paragraph.

ITEM # 108-115

Page # 60308

60.31

DISCUSSION:

General

The quality assurance program and re-current evaluations are not enough to satisfy the NSPM? Why do we need to duplicate our efforts in the form of an annual report to the FAA. What is the intended purpose for submitting a list of customers to the FAA? The NSP staff cannot keep up with the current workload. This endless requirement for reports, notifications, reviews, etc., will only serve to further burden them, and us, for no real benefit to flight crew training. It appears that even though we may have just had an annual evaluation and a QA audit we still have to send an annual report to the same people who just evaluated us.

Sub-paragraph (a)(1)

As written, it can be inferred that a sponsor is required to maintain the MQTG and all previous amendments. Since the MQTG, by its very definition, is the QTG that applies to a particular FSD as it is presently qualified, any previous revision of a MQTG will no longer represent the FSD. There will be an additional administrative and storage location overhead cost to maintain previous copies of the MQTG. With each modern FSD having a MQTG of over 10 volumes, clearly the storage requirement quickly becomes unwieldy. Second, there is an unnecessary liability issue to maintain previous copies of the MQTG reaching back years to an FSD configuration that no longer exists.

Sub-paragraph (a)(2)

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Maintaining an actual copy of all programming changes since the initial qualification will be difficult and an administrative burden. Retaining a literal copy of previous software configurations has no value beyond what the sponsor may require for troubleshooting. Frequently, after hardware changes are effected, any previous FSD software will no longer run and is of no value. This includes software used for the initial qualification and subsequent upgrade qualifications. A second objection is the storage space, physical or electronic, required to maintain copies of programming that may span the 20 to 30 year life of an FSD.

Sub-paragraph (a)(3)(iv)

American Airlines states over a period of 18 months they would have to retain almost 26,000 critique sheets.

The requirement to acquire and act on independent feedback is specified in section 5.(19), Quality Assurance Program, of each QPS. It should be sufficient that the sponsor demonstrates this process is in place and not be required to maintain the actual feedback for longer than 30 days, such as for logbook discrepancies 60.19(a)(5)(i).

Paragraph (b)

This is an unnecessary burden placed on the FSD Sponsor. If the NSPM requires a list of users, the burden should be placed on the respective users in coordination with the TPAA. From the sponsor's viewpoint, this is needless documentation.

Paragraph (c)

Remove the NSPM's implied right of approval. Most airlines have developed their own records systems that have well suited their operations for many years. These systems have been proven in actual use. The NSPM's approval or acceptance of these existing systems should be immediate unless "appropriate security or controls to prevent the illegal or inappropriate alteration of such records after the fact" do not exist. This should be written into the rule.

Paragraph (d)

The NSPM will requalify the FSDs annually, the NSPM will conduct periodic QA audits, and the sponsor must submit the results of their self-audit. There appears to be nothing value-added about this requirement.

Suggestion

Sub-paragraph (a)(1)

Reword the sub-paragraph as follows:

"(1) The MQTG, as amended in accordance with standard document revision practices."

Sub-paragraph (a)(2)

Reword the sub-paragraph as follows:

"(2) A record of all aircraft system software and aerodynamic and engine model programming changes since the most recent initial evaluation of the FSD."

Add the following QPS Requirement to section 21., Record keeping and Reporting, of each QPS:

"a. The record of programming changes must at a minimum consist of the name of the aircraft system software, aerodynamic model, or engine model changed, the date of the change, and the reason for the change."

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Add the following QPS Requirement to section 5., Quality Assurance Program, sub-paragraph f. of each QPS

“(?) A method to ensure that the correct, qualified FSD aircraft system software and aerodynamic and engine model is being used for training, testing, and/or checking.”

Sub-paragraph (a)(3)(iv)

Shorten the required time to retain the comments required by 60.9(b)(1) for a period of 30 days.

Paragraph (b)

The ATA offers two options in order of preference:

- 1) Delete this requirement.
- 2) Require that this report must be made at the request of the NSPM and the sponsor will have 7 days to provide it once requested.

If the paragraph remains, changed or otherwise, the NSPM must clarify that it was not the intent of the FAA to have a sponsor of a foreign simulator provide a list of customers of that foreign simulator operator.

Paragraph (c)

Reword the paragraph as follows:

“The records specified in this section must be maintained in plain language form or in coded form, if the coded form provides for the preservation and retrieval of information, with appropriate security or controls to prevent the illegal or inappropriate alteration of such records after the fact.”

Paragraph (d)

Delete this requirement.

ITEM # 115A	Page # 60308	60.31(a)
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Recommendation:

“ ... following records for each” should read as “ ... following records, from effective date of the rule, for each ...”

ITEM # 115B	Page # 60308	60.31(a)(2)
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Discussion:

Configuration control through QA program is suggested.

Recommendation:

A copy of the programming used during the evaluation of the FSD for initial qualification and for any subsequent upgrade qualification, and maintain configuration control through QA program of all programming changes - that impact ground or flight dynamics or impact performance or handling characteristics or MQTG demonstration performance or objective tests made since the evaluation for initial qualification.

ITEM # 115C	Page # 60308	60.31(a)(4)(iv)
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(Docket Number: FAA-2002-12461)

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Discussion:

Add item iv as follows:

Recommendation:

Name of the person who determines that discrepancy is corrected.

ITEM # 115D	Page # 60308	60.31(a)(5)
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Recommendation:

“ ... FSD hardware configurations made “ should read as “... FSD hardware configurations, restricted to ground or flight dynamics or performance and handling or aircraft system function, made”

ITEM # 116	Page # 60309	60.33
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Discussion:

As demonstrated in the questions raised during the virtual public forum and the answers provided, it is clear that this “rule” is at best, a complicated maze of requirements without a clearly prepared instruction set on how to comply with them. There are numerous cases where the letter of the rule and the intention behind it are significantly different. While the current staff at the NSPM may be fully aware of their intentions and not apply the strict interpretation of the rule, field inspectors and others who use this rule in the years to follow will not. The threatening language contained in this section along with the obvious repercussions that apply to a regulation verses an advisory circular are hard to accept given the lack of a clearly defined method for complying with requirements like the quality assurance program, log books, reports, requests etc. Section (C) provides the authority to remove qualification simply on the basis of an incorrect statement, which could be made by any individual at any level of the organization. While the NSPM has always maintained a cooperative relationship with the industry, others, such as ATOS inspectors only apply the strict interpretation of requirements and often apply rules without the benefit of the required knowledge of the flight training device industry. This section threatens not only our qualifications but also our personal livelihood. A simple misstatement, mistake, or omission without a clearly demonstrated intent to mislead should not be a basis for action. It should be applied to intent of the operator and/or sponsor not the individual.

Recommendation:

Change to read:

(a) “No sponsor may make,....” should be “No sponsor may knowingly make,”

(1) An intentionally fraudulent statement in any application or any amendment thereto, or any other report or test result required by this part or the QPS.

(2) An intentionally fraudulent statement in or an intentional omission from any record or report that is kept, made, or used to show compliance with this part or the QPS.

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ATA STIG Response to FAR Part 60 NPRM

(Docket Number: FAA-2002-12461)

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(3) Any reproduction or alteration, for fraudulent purpose, of any report, record, or test result required under this part or the QPS.

(b) The commission by any sponsor of any act prohibited under paragraph (a) of this section is a basis for any one or any combination of the following:

(1) A civil penalty.

(2) Suspension or revocation of any certificate held by that sponsor that was issued under this chapter.

(3) The removal of FSD qualification and approval for use in a training program.

Delete the remainder of this section.

ITEM # 117	Page # 60309	60.35
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Combined with #118

ITEM # 117A	Page # 60309	60.35(a)
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Discussion:

“simulator” is not defined.

Recommendation:

”... no simulator will...” should read as “ no flight simulator will....”

ITEM # 118	Page # 60309	60.35 (a)
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Discussion: This paragraph puts an undue burden on the sponsors of older flight simulators. What purpose does it serve to require “all aircraft appliances” on an upgrade program? When an upgrade is done, for any reason, the bottom line is the FSD has improved. Why strap the operator with the additional burden of replicating devices that are not necessary for the training program carried out in the device? Creating additional expenditures by increasing the scope of the upgrade to include additional systems and appliances will make upgrades too expensive and time consuming to do. This requirement does not balance training needs and benefits against costs and complexity. The items specified by the Statement of Qualification – Qualified / Not Qualified Tasks directly address training requirements and should be considered sufficient. Other objections have to do with the ambiguity inherent in this requirement: 1) With a captive fleet of aircraft, such as many airlines have, there are differences between cockpits of like aircraft. To which specific cockpit would this paragraph apply? The implication is that the FSD must track with a specific tail-numbered aircraft. 2) Sponsors with no captive fleet have no specific cockpit against which to match an FSD. How will this paragraph be applied in such a case? 3) Airbus is pushing the simulation industry toward a generic simulator for one type or a family of aircraft, again, with no specific cockpit to match. 4) This language could mean all levels of simulators must have operative Weather Radar, TCAS, ACARS and any other devices regardless of whether they will be used for training. It could also be construed to require the simulation of

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BITE systems since these have controls located in the aircraft cockpit. BITE systems are not required for flight training. This requirement does not balance training needs and benefits against costs and complexity. The final objection is that while the *general* cockpit configuration is within the purview of the NSPM, the *specific* cockpit configuration must remain between the user and the TPAA.

Recommendation: Remove this section

ITEM # 119	Page # 60309	60.35 (b)
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Discussion: The effect of this paragraph is to shut down level A simulators. There is no evidence that Level A simulators provide negative training for the maneuvers for which they are approved. This paragraph imposes an unnecessary burden on those sponsors who operate Level A devices.

Recommendation: Remove this section.

ITEM # 119A	Page # 60309	60.35(b)
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Discussion:

If this section is not removed, make the following change.

Recommendation:

"... any flight simulator ..." should read as " any level A flight simulator will...."

ITEM # 119B	Page # 60309	60.37(a)
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Discussion:

"simulator" and "airplane simulator" are interchangeably used.

Recommendation:

Should use "flight simulator" or FSD.

ITEM # 122	Page # 60309	Appendix A - General
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Discussion: The ATA is strongly opposed to publishing the rule without upgrading the appendices to the most recent ICAO guidance. The industry expended significant time and effort developing this guidance and it should be incorporated.

The European Authorities have already published the ICAO guidance as a draft to JAR STD-1A. The procedures for changing a QPS document have yet to be finalized and are not mature. Once this NPRM is published as a rule the ATA is concerned that the procedures for changing the QPS will result in significant delay in updating the QPS documents.

It is unclear why the QPS documents cannot be published separately from the rule.

Recommendation: Either update the QPS documents before publishing the final rule or withdraw the NPRM until the QPS documents are updated.

Document 1:

ATA STIG Response to FAR Part 60 NPRM

(Docket Number: FAA-2002-12461)

Note: See STIG Copy of NPRM with circled reference numbers submitted to the docket as separate document. This will assist in guiding the reader to the specific Federal Register page for comments related to the numbered items.

ITEM # 123	Page # 60309	
Combined with #122		
ITEM # 124	Page # 60310	Appendix A - 1.b.(1)
<p><u>Discussion:</u> The “direct quote or a paraphrasing of the Part 60 rule” should be removed. It repeats information that is already there; in cases where it is paraphrased, it may lead to a possible ambiguity or conflict in interpretation or in actuality; it will make future updates more difficult; and it wastes paper in hard format and memory and bandwidth in electronic format since it is repeated in each of the Appendices.</p> <p><u>Recommendation:</u> Remove the rule language from the QPS documents.</p>		
ITEM # 125	Page # 60310	Appendix A - 3.u.
<p><u>Discussion:</u> IATA data document has been updated to 6th edition. This should be referred to, and if used as background or information anywhere in this Part, those areas should be rechecked against this latest edition.</p> <p><u>Recommendation:</u> Update the QPS references before publishing the rule.</p>		
ITEM # 126	Page # 60310	Appendix A - 3.x.
<p><u>Discussion:</u> ICAO document 9625 is presently undergoing revision. The revised version should be referred to, and used as reference for this Part. Unless there is any great overwhelming reason not to, the requirements of this Appendix should be made to be EXACTLY the same as those in the revised ICAO document. This will save money for operators and sponsors worldwide who wish to obtain multiple qualifications, it will save money for device manufacturers who will only have to design and test to one set of standards, it will save money for the airframe manufacturers who will only have to provide data packages to one set of standards and it will save money for the regulatory authorities, including the FAA, once they can accept testing done by another authority to the same set of standards. It will also facilitate future harmonization between JAA and FAA simulator standards and qualifications.</p> <p><u>Recommendation:</u> Update the QPS before publishing the rule.</p>		
ITEM # 129	Page # 60311	Appendix A (4) (d)
<p><u>Issue:</u> The list of historical documents omits AC 120-40C.</p> <p><u>Discussion:</u> Although AC 120-40C was never officially adopted, it was nevertheless the design basis for many FSD’s. Including it in this list would be beneficial for historical purposes.</p> <p><u>Recommendation:</u> Add AC 120-40C to the list of document references.</p>		
ITEM # 130	Page # 60311	Appendix A - 5.
<p><u>Discussion:</u> See Item #35</p>		

Document 1:

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(Docket Number: FAA-2002-12461)

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From a philosophical point of view, A quality assurance program would normally be considered to be a good thing. However in the current context, our airline, and I would assume most others, operates an effective training system using FSD's that are well maintained and are effective training tools. We are under the oversight of our own management and local POI. The methods we use to obtain these results have historically worked reasonably well, and have resulted in a good quality training system at a cost that is economical and affordable by the airline.

The imposition of a "new" quality assurance program will have little effect on the results of the current training system. Although the text claims that the cost to create and administrate this system is minimal, there are indeed costs associated with the startup and maintenance of such a system. We estimate that there is a significant startup cost for a formal QA system, as well as a significant annual running cost. These costs go directly against the profits of the corporation and DO NOT add appreciable value to the training system operation. The reasons for instituting a formal QA program do not justify the costs of doing so.

In our opinion, a formal QA program should not be imposed on FSD operators or sponsors.

It can be argued that the imposition of the QA system will force those organizations whose operations may be of questionable quality to improve their quality to certain minimum level. Even the current regulations would allow the NSPM to take action against an operator that did not meet that undefined minimum quality, and in fact the NSPM has done so in the past.

Since the rule requires that the sponsor establish a QA program acceptable to the NSPM, the NSPM has the capability of forcing the sponsor to create a QA program in whatever format the NSPM desires. There is no alternative for the sponsor other than to spend any sum of money the NSPM desires to establish a program to satisfy any requirements that the NSPM deems necessary. The NSPM can do this through the granting or withholding of approval of the QA program.

If a QA program is to be established by each sponsor, the NSPM's control over it must be limited. The NSPM should accept the sponsor's QA program as it exists at the time Part 60 becomes effective. Any future changes to it should only be possible in conjunction with a time limit and an appeal process as described in the discussion portion for section 60.5.

The quality system requirements expressed in each of the four appendices to Part 60 appear to contain the same requirements. What is missing, however, are guidance documents: Sponsor Registration Review form (SQAP:2000 Job Aid 1), the Checklist of Questions, the Objective Assessment of a Sponsor's Quality Assurance Program (SQAP:2000 Attachment 1) and the equivalent of the SQAP:2000 Process Guidelines, all of which are currently available on the NSP web site. These are all valuable documents to a Sponsor when setting up the required quality program and should be included as QPS attachments. Since the quality program requirement is identical regardless of FFS or FTD, airplane or helicopter, the requirements and attachments need only be described once in the rule. The quality program requirements should be moved to a fifth appendix.

Recommendation: (Repeat from item #35)

Document 1:

ATA STIG Response to FAR Part 60 NPRM

(Docket Number: FAA-2002-12461)

Note: See STIG Copy of NPRM with circled reference numbers submitted to the docket as separate document. This will assist in guiding the reader to the specific Federal Register page for comments related to the numbered items.

- The QAP should only be mandatory for those sponsors seeking joint international recognition of their FSDs.
- If the QAP must exist, other conflicting FAA inspections (NASIP, ATOS, etc) should be prohibited by rule.
- If the QAP must exist, the requirements should be published as a separate QPS appendix containing the required content and how the program should be structured.

ITEM # 130A	Page # 60311	Appendix A (5) (e)
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Issue: Clarification needed on paragraph d and e – Is management representative mentioned in paragraph d one and the same as mentioned in paragraph e?

ITEM # 132	Page # 60311	Appendix A (5) (f) (4)
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Issue: This clause cannot be met without the establishment by the sponsor of an additional work inspection infrastructure.

Discussion: This paragraph implies that a system of work inspection should be established, over and above the current and proposed discrepancy creation, correction, and tracking requirements. This inspection requirement will add a layer of bureaucracy to the simulator maintenance process such that the devices will not be returned to service as quickly as possible, all work will take longer to be marked as “complete” and will obviously also incur extra costs. Operators will have to hire “inspectors”, additional personnel will be required on shift to ensure that all devices are ready for training, and additional administrative tasks will be created to track compliance with this paragraph. ATA knows of no evidence that suggests that such an inspection system is necessary, nor that it would have any benefit.

Recommendation: Remove this paragraph.

ITEM # 133	Page # 60311	Appendix A - 5.f.(8)
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Discussion: Past practice has been for the NSP scheduling office to notify the appropriate TPAA of scheduled evaluations. After the evaluation, the inspector forwards a copy of the evaluation to the TPAA.

Why is this changing? NSP inspectors frequently do not use the TPAA inspectors in a productive manner during the recurrent evaluations. In at least one case an NSP inspector stated after an evaluation that a particular TPAA APM wasn't qualified to assist in the evaluation.

The entire NSP checklist is not made available to the sponsor after the evaluation. How then can the sponsor provide the results to the TPAA?

Recommendation: Delete the requirement and continue past practice.

ITEM # 134	Page # 60311	Appendix A - 5.f.(13)
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Document 1:

ATA STIG Response to FAR Part 60 NPRM

(Docket Number: FAA-2002-12461)

Note: See STIG Copy of NPRM with circled reference numbers submitted to the docket as separate document. This will assist in guiding the reader to the specific Federal Register page for comments related to the numbered items.

Discussion: The Quality Control Program should not be required to address evaluation or inspections by other agencies than the NSP. Sponsors are currently required to serve multiple masters; i.e. the NSP and the latest quality organization (NASIP, ATOS, etc) the FAA comes up with.

Recommendation: The FAA administrator should delegate sole responsibility by rule to the NSP for qualification and inspection of all FSD programs.

ITEM # 136	Page # 60312	Appendix A - 5. Information section
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Discussion:

§60.6, paragraph (a) requires the analysis of performance and effectiveness. There is no guidance given as to how a Sponsor might accomplish this. Several years ago, ARINC, under direction from the Flight Simulator Engineering and Maintenance Conference (FSEMC), sponsored an industry working group to develop standards for simulator metrics. This work was published as ARINC Paper 433, "Standards Measurements for Flight Simulator Quality."

Recommendation:

ARINC Paper 433, as amended, should be referenced to provide guidance to Sponsors as one acceptable method of meeting the requirements of Section 60.6, paragraph (a).

ITEM # 137	Page # 60312	Appendix A (5) (g)(1)
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Deleted

ITEM # 137A	Page # 60312	Appendix A 6.c
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Discussion:

This should be a business driven sponsor's option.

Recommendation:

Delete this section.

ITEM # 139	Page # 60312	Appendix A - 7.b.(1) & (2)
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Discussion:

Item 60.9 (b)(1)&(2) propose that the sponsor establish a mechanism in order for certain persons to provide comments regarding each FSD and its operation. The mechanism is to provide for receipt of those comments, provide for the examination of each comment, provide for the classification of the content of each comment, provide for the determination of importance of each comment, and take appropriate action.

The primary requirements of FAR 60 are targeted towards an improved simulation training tool and environment by establishing specific measurable performance standards and establishing QA monitoring programs to ensure compliance. The basis for compliance and measurement are standards and data.

Document 1:

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(Docket Number: FAA-2002-12461)

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The proposed mechanism described in 60.9(b)(1)&(2) to solicit comments does not make good practical sense as it provides a method to mix a myriad of personal opinions into the established standards and data based criteria. The proposed rule further dilutes each sponsors technical capabilities by tying up valuable resources to receive, examine, classify, judge, take action, and track each comment.

Sponsors will have a difficult time dealing with opinions, while regulators will find it difficult to enforce compliance. One could envision a scenario occurring in which an FSD is qualified one day followed by a trainee registering a comment the next day that states "the simulator pitch is more sensitive than the aircraft". Is the trainee correct? Did the trainee have difficulty on the check ride?

Item 60.19 requires certain actions be accomplished on a recurring basis that include QPS performance demonstrations and objective tests, functional preflights, maintenance of a discrepancy log, NSPM recurrent evaluations, and continued maintenance on the FSD. In addition, the proposed rule requires the Sponsor to establish an NSPM approved QA program and keep the FSD up to date with data package updates.

FAR 60 contains sufficient requirements to guarantee the continuous performance of each FSD. A requirement for comments (i.e., personal opinions) is redundant, impractical to manage and regulate, and has no place in a system based upon standards and data.

Recommendation:

Remove the requirement to collect and action comments.

ITEM # 139.1	Page # 60312	Appendix A 8.c
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Discussion:

Recommendation:

"... recurrent evaluations." should read as "... recurrent evaluations and satisfactory compliance with sponsor's QA program."

There are also formatting problems with the paragraph numbering.

ITEM # 139.2	Page # 60312	Appendix A 8.d
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Recommendation:

"...by the NSPM." should read as "... by the NSPM ,or subsequently modified per sponsor's QA program."

ITEM # 139A	Page # 60313	Appendix A - 8.(e)
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Discussion: Format error in text.

Recommendation:

The term "End QPS Requirements" at the end of paragraph e. should be deleted from the end of this paragraph and inserted at the end of the following paragraph (f.). The term "Begin

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Information" prior to paragraph f. should be deleted and inserted in front of the following paragraph (g.).

ITEM # 139B	Page # 60313	Appendix A - 9.(a)
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Discussion: Does “evaluation” mentioned above mean an initial evaluation and a recurrent evaluation?

Recommendation:

Change the wording to: “...qualities during evaluation for initial qualification...”

ITEM # 140	Page # 60313	Appendix A - 9.(e) & (f)
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Discussion:

1. FAA should coordinate internally for required data . Aircraft certification data produced for the manufacturer should be sufficient to qualify a simulator. NSP should coordinate with FAA (ACO) for data.
2. NSP should inform sponsors about availability of additional or amended or revised data.
3. Additional flight test data requirement is beyond the purview of NSP. Aircraft is type certificated

Recommendation: Delete both paragraphs.

ITEM # 141	Page # 60313	Appendix A (9) (g)
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Discussion:

The draft ICAO document, “Manual of Criteria for the Qualification of Flight Simulators,” provides additional guidance for when the use of engineering data is acceptable and guidelines for additional engines and avionics.

Recommendation:

This information, contained in Appendix B of the ICAO document, should be incorporated into the informational section. In addition, Appendix E and F of the ICAO document provide guidelines for data requirements for alternate engines and alternate avionics, respectively. They, too, should be incorporated.

ITEM # 141A	Page # 60313	Appendix A - 9.g
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Discussion:

- Flight test data mentioned in paragraph g:
 - Does it mean airplane manufacturer data or data from other flight testing sources or both?
 - If both, does airplane manufacturer need to submit its flight test program to NSPM, separately for each sponsor?
- g (2) Appropriately qualified flight test personnel:
 - What is the definition of qualified flight test personnel?

Recommendation:

Document 1:

ATA STIG Response to FAR Part 60 NPRM

(Docket Number: FAA-2002-12461)

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Airplane manufacturer flight test program, if required, should be coordinated between the NSPM and the data provider.

ITEM # 143

Page # 60314

**Appendix A (9)
Information section**

Discussion:

The industry continues to struggle with some data providers over data. Perhaps some weight from the NSPM could be thrown behind the Sponsors if the NSPM were to recommend that data providers use the IATA document “Flight Simulator Design and Performance Data Requirements,” as amended. The addition of this recommendation would provide formal recognition of this document by the NSPM and provide guidance for smaller data providers as to the level of data required for simulation.

Recommendation:

Recommend data providers follow the guidance provided in the IATA document “Flight Simulator Design and Performance Data Requirements,” as amended.

ITEM # 143A

Page # 60314

Appendix A 11.c

Discussion:

Example of mismatch between rule and QPS. Add this section and rename subsequent sections.

Recommendation:

c Except for those FSDs previously qualified and described in § 60.17, each FSD evaluated for initial qualification must meet the standard that is in effect at the time of the evaluation.

However—

(1) If the FAA publishes a change to the existing standard or publishes a new standard for the evaluation for initial qualification, a sponsor may request that the NSPM apply the standard that was in effect when an FSD was ordered for delivery if the sponsor—

(i) Within 90 days of the publication of the change to the existing standard or publication of the new standard, notifies the NSPM that an FSD has been ordered; (ii) Requests that the standard in effect at the time the order was placed be used for the evaluation for initial qualification; and (iii) The evaluation is conducted within 24 months following the publication of the change to the existing standard or publication of the new standard, unless circumstances beyond the control of the sponsor prevent the evaluation from occurring within that time.

(2) This notification must include a description of the FSD; the anticipated qualification level of the FSD; the make, model, and series of aircraft simulated; and any other pertinent information.

(3) Any tests, tolerances, or other requirements that are current at the time of the evaluation may be used during the initial evaluation, at the request of the sponsor, if the sponsor provides acceptable updates to the required qualification test guide.

(4) The standards used for the evaluation for initial qualification will be used for all subsequent evaluations of the FSD.

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ITEM # 146A	Page # 60314	Appendix A (11) (k) (3)
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Discussion:

Need to clarify convertible simulator mentioned in 60.15, k (3) and convertible simulator mentioned in 60.15, s. Convertible simulator mentioned in 60.15, k(3) means, for example, a 757-200 simulator that has one QTG with two engine options (PW and RR). This QTG should include two simulator information pages, one for PW engine and second for RR engine. Convertible simulator mentioned in 60.15, s means, for example, an A330-300 simulator with its QTG and an A340-300 simulator with its QTG, using the same platform, host computer, motion system, visual system, etc.

ITEM # 146B	Page # 60315	Appendix A (11) (k) (3)(i)
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Discussion:

Clarification: what does Simulator Computer include i.e.: Host computer, PC for subsystems like TCAS or ACARS...?

ITEM # 147	Page # 60315	Appendix A (11) (k) (6)
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Issue: This clause implies that the QTG should include a copy of all of the source data, which is clearly impractical.

Discussion: The implication here is that the QTG must contain a copy of all the original aircraft source data upon which the simulation is based. ATA proposes that a more practical implementation with the same result would be to require a list of the data that was used. Otherwise, compliance with this requirement will turn the QTG into an enormous document that will waste a tremendous amount of paper, computer memory, and transmission bandwidth.

Recommendation: Clarify the paragraph to require only a listing of all the data references.

ITEM # 147A	Page # 60315	Appendix A (11) (k) (10)(d)
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Discussion:

What happens when manual procedures can not be accomplished from the cockpit? An example would be a single spoiler activated that induces a Dutch Roll.

Recommendation:

Change the wording to: "...procedures, if applicable."

ITEM # 147B	Page # 60315	Appendix A (11) (l) (5)
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Discussion:

What would be acceptable means, not to obscure the reference data? (One way is to distinguish lines with spaces or symbols. If this capability is not available, then what?)

ITEM # 148	Page # 60315	Appendix A - 11.o.
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Document 1:

ATA STIG Response to FAR Part 60 NPRM

(Docket Number: FAA-2002-12461)

Note: See STIG Copy of NPRM with circled reference numbers submitted to the docket as separate document. This will assist in guiding the reader to the specific Federal Register page for comments related to the numbered items.

Discussion: The requirement to convert all MQTG's for older simulators to an electronic format will be very expensive and time consuming. There are literally thousands of pages of data for each simulator to be digitized in some format. If the requirement is retained, then the phrase "acceptable to the NSPM" should be removed. This requirement may subject the operators to digitizing this old data in a format that may be excessively and unnecessarily time consuming and expensive. This requirement could be abused by the NSPM in order to achieve a result that is convenient to him without regard to the cost and effort it places upon the industry.

If the NSP intent of the requirement is to have an archived version of the QTG to insure sponsors are not changing the document without approval, then the QTG could be copied to microfilm or some other media.

Recommendation: The ATA strongly recommends that this requirement be deleted.

ITEM # 149

Page # 60315

Appendix A (11) (r)

Issue: This clause raises concerns regarding lack of flexibility in scheduling initial or upgrade evaluations.

Discussion: Normal practice for an initial evaluation has been to provide the initial complete QTG at least 45 days prior to the evaluation from the tests performed in the factory, followed by the 1/3 set at least 14 days prior to the date. In the case of updates, where there is no factory phase, it has been agreed in the past that the QTG (or the relevant sections) must be provided at least 30 days prior to the evaluation date. Although these timeframes need not be strictly enforced, the understanding should be described in the information section. The text of this paragraph implies that these are unusual circumstances. In fact, this is likely the way most airlines approach this since, for initial evaluations, they need to establish dates as early as reasonably possible so the device can go into service as quickly as possible, and in the case of upgrades, so the device is out of service for as short a period as possible. Operators need to plan these events over a much longer period than the 10 working days noted in this paragraph. While ATA appreciates the fact the NSPM wishes to impose greater control over submissions that are made prematurely just to get a schedule position, ATA also proposes that there is wisdom in maintaining some of the current flexibility, to the benefit of both sponsors and the NSPM alike.

Recommendation: ATA suggests that this issue be addressed in open dialog.

ITEM # 150

Page # 60316

Appendix A (13)

Issue: This clause includes several items that disagree with the proposed paraphrasing that would be included in the QPS documents.

Discussion: The text of the rule (60.17) and of the "paraphrased" rule of this section differ significantly. Paragraph b of the rule is excluded from the QPS language. This makes the reference to paragraph (e) made in paragraph (a) incorrect. Also, the text in paragraph (d) of the QPS omits wording from the corresponding paragraph (e) of the rule. The effect of this omitted wording gives the NSPM the unlimited unilateral power to downgrade a simulator. This is not the intent of the associated paragraph in the rule.

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Recommendation: These two issues serve as examples of why the text of rule should *not* be repeated or paraphrased in the QPS. The QPS should contain only the additional detail of device qualification that is not included in the rule itself. A reference in the QPS documents to the rule would be more appropriate, and certainly easier to provide.

ITEM # 153	Page # 60316	Appendix A - 14.a.(1)
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Discussion:

In current practice those performance demonstrations and objective tests (e.g. motion, latency, buffet, sound, visual etc.) that require special equipment to complete them, are sequenced together. Will it be acceptable to NSPM under this rule?

ITEM # 156	Page # 60317	Appendix A - 14.d.
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Discussion: This paragraph provides excessive detail and allows the operator no flexibility. The details of what is required for the preflight should be in the sponsor's operating procedures. As written the only way a preflight could be accomplished is by a fully qualified pilot. Paragraph d.(4) requires "...and simulated airplane system..." This implies that the preflight must check every airplane system on the FSD. This would be extremely time consuming.

Recommendation: Delete the detail from paragraph 14.d.(4) and allow the sponsor to determine what constitutes a valid preflight.

ITEM # 157	Page # 60317	Appendix A - 14 Information Section
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Discussion:

The NSPM should develop a recommended profile to be flown by NSP evaluation pilots during FSD recurrent evaluations. This follows from two propositions:

First, with the advanced avionics (e.g., Airbus FMGC) now in use in aircraft, which are "smart" with respect to aircraft phase of flight, multiple and frequent repositions of an FSD, such as experienced during some recurrent evaluations, can cause avionics to malfunction or to lock-up when they become "confused" as to the phase of flight. Experience has shown that the more an FSD is "flown" like an airplane, the more it will "fly" like an airplane.

Second, with a reasonably standardized flight profile, the discrepancy data gathered by the NSPM could be used to monitor trends at both the Sponsor level and throughout the industry in general. The profile could be periodically varied based on the data analysis or the desire for other data. Without a standard profile, the discrepancy data gathered will be of little use. An example of such a profile can be found in JAR-STD 1A, Change 1, IEM STD 1A.015, paragraph 4.6 (page 2-C-6).

Recommendation:

The NSPM should develop a recommended profile to be flown by NSP evaluation pilots during FSD recurrent evaluations.

Document 1:

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(Docket Number: FAA-2002-12461)

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ITEM # 158**Page # 60317****Appendix A - 14.f.**

Discussion: This paragraph implies that simulator time must be available while the inspector is reviewing the data. Eight hours is excessive unless the simulator has experienced a malfunction. It is expensive to have a simulator sit idle just in case the inspector wants another test run. If the NSPM considers four hours of simulator time to be insufficient then the inspector should provide a list of the required tests before the evaluation so that they can be run the morning before the evaluation.

Recommendation: Delete "..., require approximately eight (8) hours of simulator time and " from the paragraph.

ITEM # 159**Page # 60317****Appendix A - 14.f.(2)**

Discussion: Most, if not all, FSDs will be under an annual recurrent evaluation requirement under the proposed rule. Running approximately 20 percent of all the tests in the QTG would require excessive time. For example, approximately 30-35 tests would have to be run on an aircraft such as the B-777). A guideline of ten percent should be sufficient.

Recommendation: Change to paragraph to read as follows:

"At the discretion of the evaluator, a selection of approximately 10 percent of the objective tests in the MQTG will be run as part of the evaluation. The tests chosen ..."

ITEM # 159A**Page # 60317****Appendix A 17.c(2)**

Discussion:

Need clarification on specific form and manner.

Recommendation:

Suggest including details of "specific form and manner" in this section. Use Attachment 5, Figure 6 (appropriately modified), and Attachment 5, Figure 1 (appropriately modified) to notify proposed modification, request for evaluation date and request for (modification) evaluation?

ITEM #163**Page # 60318****Appendix A (17) (h)**

Issue: This clause includes several items that disagree with the proposed paraphrasing that would be included in the QPS documents.

Discussion: This paragraph requires that a simulator test pilot sign a statement agreeing to and accepting the accuracy of a modification that does not yet exist. The ATA proposes that there is no simulator test pilot who would sign such a statement, and that if one such test pilot were to exist, said signature would inherently have no merit. The signed statement required by this paragraph is in fact requiring a pilot to predict that the modification proposed will meet the three criteria listed. This is an inappropriate requirement.

Recommendation: This requirement should be deleted.

ITEM # 164A**Page # 60318****Appendix A - 18.b.**

Document 1:

ATA STIG Response to FAR Part 60 NPRM

(Docket Number: FAA-2002-12461)

Note: See STIG Copy of NPRM with circled reference numbers submitted to the docket as separate document. This will assist in guiding the reader to the specific Federal Register page for comments related to the numbered items.

Discussion: The rule says 7 days, the QPS says 30 days. Which is it?

Recommendation: See item # 97

ITEM # 169	Page # 60319	Appendix A – Attachment 1,1.
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Discussion:

In several places, the rule requires compliance with and reporting of “performance demonstrations,” e.g., §60.15(b)(5)(iii). The rule also contains references to “objective tests,” which are clearly identified in the QPS Attachment 2, and “subjective tests,” which are clearly identified in QPS Attachment 3. However, the only place that the term “performance demonstration” is defined seems to be in §60.19(a)(1) where it refers to the “...appropriate QPS Attachment 1 performance demonstrations.” United Airlines presumes that the performance demonstration is in reference to the Attachment 1 Table of Minimum Simulator Requirements. Referring to the column labeled “additional details,” some of the requirements clearly indicate that “a demonstration is required...”

Recommendation:

This Attachment and the associated table should be re-titled and additional words put into the “additional details” column clearly identifying those items considered to be the “performance demonstrations.”

ITEM # 170	Page # 60319	Attachment 1 to Appendix A (1) (a) (1)
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Issue: The acronym SOC is incomplete.

Discussion: The abbreviation for “Statement of Compliance and Capability” would logically appear to be SOCC and not SOC as defined in this paragraph.

Recommendation: This should be corrected to “SOCC”.

ITEM # 171	Page # 60319	Appendix A – Attachment 1, 1.a.(a)
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Discussion: The implication of this paragraph is that every real-world, operational airport simulated must contain scene content comparable to the actual airport. The intent of the visual scene content requirements generated by the visual working group for the ICAO document, “Manual of Criteria for the Qualification of Flight Simulators,” of which ATA member airlines were a part, was clearly that the specified scene content was only to demonstrate the required visual system capability. While each of the three demonstration airports should belong to the Sponsor’s route structure, it was not the intent that each of these three airports had to meet the scene content requirements; only that among the three, all of the scene content requirements could be met. Further, the visual working group was insistent that the scene content beyond the three demonstration airports was between the user and the respective TPAA. It is beyond the

Document 1:

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(Docket Number: FAA-2002-12461)

Note: See STIG Copy of NPRM with circled reference numbers submitted to the docket as separate document. This will assist in guiding the reader to the specific Federal Register page for comments related to the numbered items.

purview of the NSPM to specify scene content beyond that required at the demonstration airports.

Recommendation: Replace this paragraph with the following:

The minimum airport model elements for the purposes of this document are those elements required to satisfy visual capability tests, and provide suitable visual cues to allow completion of all Functions and Maneuvers Tests described in this appendix. If all of the elements can not be found at a single real world airport, then additional real world airports may be used.

ITEM # 173

Comment incorporated into item 171, above.

ITEM # 174

Page # 60320

**Appen A - Atch 1 - 2
Table of Min Sim Req**

Discussion: If Level A simulators are to be killed in two years there is no reason to have them in this appendix.

This table should be revised to reflect the amended ICAO document, “Manual of Criteria for the Qualification of Flight Simulators” for Level D FSDs, with the lesser devices being a subset of these requirements.

Recommendation: Revise the table to reflect the amended ICAO document.

ITEM # 174B

Page # 60320

**Appendix A - Atch 1
Table of Min Sim Req**

Issue: Miscellaneous comments/errors in Table

Section 3.k Additional details ---

1. S.O.C. and demonstration should be clarified to be applicable to tire failure dynamics.
2. “A demonstration is required for initial and recurrent evaluations”. Initial and recurrent evaluations words are mentioned in reference to performance recording as in “Simulator performance must be recorded for decrease”. Per 60.19 (a) (1) demonstrations and performances must be inspected once in a year. For purposes of consistency (and to avoid misinterpretation that perhaps performance should be done only once), please remove phrase “initial and recurrent evaluations” from demonstrations or add this phrase for performance records.

Section 3.l --- We understand this to be demonstrated via the FSD Qualification Guidance for Simulator Icing Effects on NSP website. Should not contents of guidance be included in Information Notes?

Section 3.m ---

- A. Item (3) – “Effect of Icing” is redundant in view of 3.l. Should be deleted.
- B. Item (1) – “Low altitude level-flight ground effect” are recorded tests, so should not require S.O.C.
- C. “Simulator performance must be recorded”. Not clear as to what does it apply to?

Document 1:

ATA STIG Response to FAR Part 60 NPRM

(Docket Number: FAA-2002-12461)

Note: See STIG Copy of NPRM with circled reference numbers submitted to the docket as separate document. This will assist in guiding the reader to the specific Federal Register page for comments related to the numbered items.

Section 3.n --- In view of the QA program, this item should be deleted.

Section 4.c --- Typo “gound” should be “ground”.

Section 4.d --- Typo “... simulator must be also ...” should be “... simulator must also ...”.

Section 5.a --- Please append at the end of the paragraph. “within the limitations of airplane cockpit layout”

Section 5.b --- 1. “... all required system variables ...”. This term is very vague. Should be defined. 2. “... abnormal or emergency conditions ...” should read as “... abnormal or emergency conditions as described in sponsor’s approved training program”.

Section 5.c --- This paragraph is subset of paragraph 5.b. Should be deleted.

Section 5.d --- Contents of 5.d and 7.e should be combined in (modified) 5.d under the title of “Instructor or Evaluator Visual Control”.

Section 6.b, 6.c and 6.d --- SOC should be deleted in view of information being available in Attachment 5 Figure

Section 6.c --- Why is Level B required to meet a minimum of 4 dof? AC 120-40B and 120-40C require 3dof.

Section 7.b and 7.c --- SOC should be deleted in view of Attachment 5 Figure 4A.

Section 7.e --- Move contents to 5.d, and delete 7.e.

Section 7.f and 7.m --- If sponsor has more than three airport scenes available, is it NSPM intent to evaluate all these scenes at initial and recurrent evaluations, or will TPAA evaluate scenes that are in excess of three?

Section 7.h --- Intent of this paragraph is not clear. Please provide specifics as information notes.

Section 7.l (2) --- 1). Information notes should be moved to 7.l (1) 2). Since there is no requirement of SOC in 7.n – which is of similar technical nature as 7.l (2), SOC for 7.l (2) should be deleted.

Section 7.p --- Should not be applicable to Level C, per AC120-40C. Also the required test is not capable of being used for Level C as there is not enough light to see that far during dusk or night.

Section 7.s --- Additional details – “... These requirements are applicable to any level of simulator” should to be highlighted in such a way that it is ‘marked’ for Level A, B and C also. As is reader will read this paragraph only for Level D requirements.

Clarification --- If a visual system capable of day-light scene, that is qualified at Level C and not used in training for any credits, will the above requirement apply to this simulator?

Section 8.b --- Should not “normal engine and thrust reversal sounds, and other sounds of flaps, gear and spoiler extension and retraction” be inserted after “... other significant airplane noises”?

Section 8.c --- Additional details: 1). What is paragraph 4.w? 2). “... and airframe sounds” should read as “... and airframe sounds according to available data”

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(Docket Number: FAA-2002-12461)

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ITEM # 175	Page # 60320	Appen A - Atch 1, 2.a
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Discussion: As written, and if actually enforced, these paragraphs imply a significant regulatory shift in the specification of FSD requirements for training. This is based on the ATA's reading of the paragraph to require that the FSD, from the pilot's perspective, have all of the flight deck equipment (i.e., panels, switches, instruments, etc.) to *replicate* the specific aircraft flown by the user.

While written in the FSD-related Advisory Circulars, the interpretation of the requirement that an FSD be modified to match aircraft modifications has never been clearly seen by the ATA as within the scope of the NSPM to address. Indeed, the very essence of SFAR 58 *Advance Qualification Program* under which many major airlines train allows a carrier to develop a training program based on a task and media analyses. These analyses are approved by AFS-230, then the training program is approved by the POI. Were an AQP airline to elect to forgo installing Predictive Windshear (PWS), as an example, in their FSDs because the media analysis showed it could be trained elsewhere, and were AFS-230 and the POI to agree, then the carrier should not have to modify their FSDs for such "optional" equipment as PWS simply because the NSPM directs it. It is, however, fair in the opinion of the ATA for the NSPM to require that the FSD cockpit require all equipment, appliances, etc. necessary for the airworthiness of the aircraft being simulated (e.g., TCAS for those aircraft that require it).

Recommendation:

It is the opinion of the ATA that the NSPM should qualify an FSD based on the list contained in the Information section of QPS Attachment 1, paragraph 1 as amended below:

1. General cockpit configuration, *including equipment and appliances required for the airworthiness of the aircraft as operated by the FSD user.* (language in italics added)
2. FSD programming
3. Motion system
4. Visual system
5. Sound system

ITEM # 176	Page # 60320	Attachment 1 to Appendix A (2) (c)
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Issue: There are several issues with this paragraph.

Discussion: *Incorrect location of this verbiage:* This is not the appropriate location for this requirement because it is not the type of requirement that could be validated during an initial or recurrent evaluation. This should be in the Part 60 rules instead. It is not a technical requirement of the simulator; it is a requirement of the sponsor's processes.

Concern over basis of this requirement: While there has always been a requirement that the FSD be like the aircraft, this requirement truly imposes an entirely new level of simulation achievement, at extremely high cost and very little value. There has historically existed the flexibility to accept deviations from the aircraft by training the related crew procedures through some other means besides the FSD. Strict compliance with this requirement will be very

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expensive and could result in a great deal of simulator down time to implement simulations that won't be used, to the point that sponsors would have to operate a much larger fleet of FSD's. The requirement demands updating for *any* airplane mod or data release. There should be an allowance so that the simulator need only be modified in the case where the airplane mod or data release would significantly affect training. It seems that this requirement is borne more out of the fact that technically accurate simulations are now possible for systems that could not previously be simulated, with no regard for whether or not it makes economic or educational sense to do so.

Impractical implementation and extremely high cost: ATA further posits that there are no significant historical events that suggest risk to air safety as a result of not having had this requirement so stringently enumerated in the past. Fulfilling this requirement will necessitate the hiring of a large number of simulator engineers and technicians by the operators and will result in a permanent increase in manpower and, of course, an increase in the associated costs. The additional proposed paperwork, acceptance, and inspections suggested by other sections of this Part 60 would exacerbate that issue tremendously, making the resource requirement easily an order of magnitude higher than it is now.

Qualification Risk: ATA posits that the risk of losing certification of an FSD due to failure to meet the 6 month requirement is a tremendous wager. The 6 month limit is particularly unrealistic for modifications that are industry-wide. Furthermore, if changes are of low training benefit, there is no need to rush and incur simulator downtime in order to install these modifications.

NSPM resource concern: ATA has concern that the NSPM will not have resources to manage acceptance of the vastly larger number of modifications that would require NSPM approval. However, the proposed wording in other sections of Part 60 place the risk of limited NSPM resources on the shoulders of the operators. This is an unacceptable business risk.

Risk to air safety: ATA posits that the lack of training value, high resource cost, risk of FSD disqualification, and limited NSPM resources resulting from this requirement would *significantly* worsen air safety and crew readiness, not improve it. ATA posits that it would be contrary to air safety to impose this requirement.

Recommendation: This paragraph should be deleted, and wording that is similar to existing wording should be proposed.

ITEM # 178

Page # 60322

Appen A - Atch 1 - 3.(i)
Table of Min Sim Req

Discussion: There is no evidence that decreasing the response time of a level B simulator will enhance the quality of training in the device. This requirement by itself would kill all level B simulators when a Statement of Qualification for that simulator is published.

Recommendation: Leave the response time of level B simulators at 300 ms. as is currently allowed.

ITEM # 179

Page # 60322

Appen A - Atch 1 - 3.i.(2)

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(Docket Number: FAA-2002-12461)

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Table of Min Sim Req

Discussion: Requiring the three transport delays tests to be supported by three latency tests is redundant. When Ed Booth approved the concept of transport delay testing over ten years ago he acknowledged that there are numerous other objective tests that demonstrate that the response is acceptable.

Recommendation: The latency requirement when running transport delays is redundant and should be removed.

ITEM # 179A	Page # 60323	Appen A - Atch 1 - 3.l Table of Min Sim Req
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Discussion: To amplify application.

Recommendation:

Incorporate the same icing criteria as currently being published in the JAR STD 1A document.

ITEM # 179B	Page # 60323	Appen A - Atch 1 - 3.m Table of Min Sim Req
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Discussion: Correction of typos.

Recommendation:

Information notes:

Paragraph 4 should read as paragraph 3f and 6.

ITEM # 180	Page # 60323	Appen A - Atch 1 - 3.m.
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Discussion: The aerodynamic modeling features of paragraph m. should be required for both Level C and D simulators. Therefore, an "X" should be added to the column under Simulator Level C. Several validation tests, including all those at the cruise condition, require Mach and aeroelastic effects. Ground effects are required for landing and takeoff tests. This change has been made to JAR-STD1A Amendment 3, and would also support the proposed FAA objective of eventually combining Levels C and D.

Recommendation: Add an "X" to the Level C column of paragraph 3.m.

ITEM # 181	Page # 60323	Appen A - Atch 1 - 3.n.
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Discussion: This requirement is ambiguous and does not adequately define what is required.

Recommendation: Clarify the intent of this requirement.

ITEM # 182	Page # 60323	Appen A - Atch 1 - 4.a.
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Discussion:

Comment: The requirement to have numerical values represented in units for U.S. operations is not compatible with some operators who operate their aircraft with other units. Some U.S.

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(Docket Number: FAA-2002-12461)

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carriers, operate strictly in “kilos” for weight and fuel measurements regardless of where they are. Why would they operate or configure their simulators differently?

Recommendation: Simply change this requirement to reflect the configuration of the aircraft represented.

ITEM # 183	Page # 60324	Appen A - Atch 1 - 5.a. Table of Min Sim Req
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Discussion: The wording "...similar positive restraint devices..." implies that the instructor and observer seats would also have to have shoulder harness and crotch straps. Is this what is required?

Recommendation: Delete the word "...similar..." from the Additional Details.

ITEM # 184	Page # 60328	Appen A - Atch 1 - 7.s. Table of Min Sim Req
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Discussion: Many older visual systems have a limited "daylight" scene but cannot attain level D due to limited number of surfaces, edges, or light points. FSDs with these visual systems generally do not have ambient lighting and therefore cannot meet the 5 foot-lamberts requirement. Restricting these FSD to the use of only Night or Dusk scenes is to the detriment of training.

Recommendation: Delete the last sentence under the Additional Details column.

ITEM # 186	Page # 60330	Appen A - Atch 1 - 8.c. Table of Min Sim Req
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Discussion: The sound of precipitation is a new requirement which would be impossible to comply with. The test aircraft would have to go find some rain to get data for this test. Then we would have no idea what the intensity of the rain actually was. How would we do this?

Recommendation: Sound of precipitation is a subjective test and should be removed from this table.

ITEM # 187	Page # 60330	Appen A - Atch 2 - 1
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Discussion:

Appendices C, Validation Test Tolerances; D, Validation Data Roadmap; G, Transport Delay Testing Method; and H, Recurrent Validations—Validation Test Data Presentation of the amended ICAO document, “Manual of Criteria for the Qualification of Flight Simulators” adds a great deal of explanatory material to the area of FSD validation testing. Each ICAO appendix should each be added to the Informational section of this Attachment as well as those of Appendix B of this rule.

Recommendation:

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ATA STIG Response to FAR Part 60 NPRM

(Docket Number: FAA-2002-12461)

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The Table of Objective Tests should be revised to reflect the amended ICAO document, "Manual of Criteria for the Qualification of Flight Simulators," to *include the relevant appendices*, for Level D FSDs, with the lesser devices being a subset of these requirements.

ITEM # 188	Page # 60330	Appen A - Atch 2 – 1.a.(1)
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Discussion: None

Recommendation: Change "Flight Test Data" to "flight test or other approved data" to allow for alternate data sources, in accordance with allowable procedures.

ITEM # 189	Page # 60330	Appen A - Atch 2 – 1.(5)
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Discussion:

This could be guidance for any data provider; however, the NSPM should approve the Validation Data Roadmap (ICAO document, "Manual of Criteria for the Qualification of Flight Simulators," Attachment D) for the QTG-related data packages prior to their being used in any FSD.

Recommendation:

The NSPM should pre-approve the Validation Data Roadmap (ICAO document, "Manual of Criteria for the Qualification of Flight Simulators," Attachment D) for the QTG-related data packages prior to their being used in any FSD.

ITEM # 190	Page # 60330	Appen A - Atch 2 – 1.(8)
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Discussion:

The requirement for a Sponsor to ensure the duration of steady state tests as specified in this paragraph again could place the Sponsor between the NSPM and the data provider. This paragraph should explicitly state that it is the responsibility of the data provider to ensure such steady state data is available. It is only the Sponsors responsibility to ensure that, assuming the data is available, the test is run as described in this paragraph.

Recommendation:

This paragraph should explicitly state that it is the responsibility of the data provider to ensure such steady state data is available.

ITEM # 191A	Page # 60331	Appen A - Atch 2 -1.a.(12)(a) Simulator Objective Tests
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Discussion:

Assumption(s)/Note(s):

1. This comment is based on the FAA's response to a question submitted during the Public Meeting Forum regarding Manual Test Requirements, pg. 60331, (12)(a).
2. Assumed, based on past discussions with the NSP staff, the NSP did not want to retain the phrase "electronically generated inputs"(pg. 60331, (12)(a)) without qualification or restriction, because the use of this legitimate flight-test technique by one mfg. had precluded

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ATA STIG Response to FAR Part 60 NPRM

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“manual” objective testing in a couple of instances.

Recommendation:

1. Add language to limit the use of "electronically generated inputs" (pg 60331, (12)(a)) during the acquisition of flight test data for FSD qualification unless necessary.

Reason: The use of this legitimate flight-test technique by one mfg. had precluded “manual” objective testing in a couple of instances. The burden then fell on the simulator mfg. and sponsor to produce both an auto-only test supplemented by a conventional test, which was supported by the mfg.’s engineering data.

ITEM # 193	Page # 60331	Appen A - Atch 2 - 1.b.(2) Simulator Objective Tests
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Discussion: This paragraph, which is in the Information section, requires that there be an SOC stating that “the motion system is designed and manufactured to safely operate within...” and it says to see paragraph 3 in the following table. That table makes no reference to such a requirement in the SOC. This is a new SOC requirement that is not referenced or described anywhere else. Since it is in the information section, it does not have to be complied with and should be removed.

The NSPM cannot and should not make this a valid requirement since, in many cases the original manufacturer of the motion system is no longer in business. The sponsor or operator cannot make such a statement because he cannot control the design and manufacture process, even for new simulators. Also the parameter “safely” cannot be objectively measured and so no one can absolutely make such a statement.

There is currently no industry-wide agreement on what constitutes “safe” operation of a motion system. Neither is there industry-wide acceptance of how a motion system would be tested for safe operation.

Recommendation: Delete the paragraph as it has no practical meaning.

ITEM # 194	Page # 60331	Appen A - Atch 2 - General Table of Objective Tests
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Discussion:

Common comments for Table of Objective Tests:

a) Test Numbering: To standardize further, it is recommended that existing test numbering should be extended to include variations in flight conditions and weight etc. As an example, b.(1) Pitch Control will be expanded to b.(1)a1 Pitch Control for Takeoff with Forward displacement, b.(1)a2 Pitch Control for Takeoff with Aft displacement, b.(1)b1 Pitch Control for Cruise with Forward displacement, b.(1)b2 Pitch Control for Cruise with Aft displacement, b.(1)c1 Pitch Control for Landing with Forward displacement and b.(1)c2 Pitch Control for Landing with Aft displacement.

Document 1:

ATA STIG Response to FAR Part 60 NPRM

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b) Tolerance type of information in "Test details" should be moved to "Tolerance". For example; Engine failure speed must be within +/- 1 knot in 2.b.(2) and ... a tolerance of +/- 0.8 in (2 cm)... in 3.a.(7), should be written under "Tolerance" column.

c) Multiple weights requirement for a test should be part of "Flight conditions". Example; In 3.e.(1) medium, light and near maximum landing weights should be part of "Flight conditions"

Test 2.b.(1) - What is "...preliminary aircraft certification data..." and how does it differ from other "flight test data"?

Test 2.b.(6) --- Under Test details: "... wind speed and direction vs. altitude" should be "...wind speed and direction vs. altitude and time"

Test 2.d.(1) --- Level A and B should be deleted.

Test 2.e. --- Correct typo for Deceleration

Test 2.f.(1) & (2) - Terms Ti and Tt as defined in attachment 4 should be elaborated in a figure, with emphasis to clarify Tt.

Test 2.f.(2) --- Should be selected for Levels A, B, C and D

Section 3. Handling Qualities --- This title should move to next page.

For simulators requiring Static or Dynamic testswith reversible controls. This information should be moved to page 60331, paragraph b. Discussion.

Test 3.a.(3) --- "CCA: Position vs. force not required " should be added in Test details. Fly-by-wire rudder system exists now.

Test 3.a.(5) --- Deadband tolerance of +/-0.5 deg is unrealistically too tight. Should be increased to +/-2 deg.

Test 3.b.(1), (2) and (3) --- Paragraph 3 should be 5 under Information notes.

Test 3.b.(3) --- "CCA: Test not required" should be added. Fly-by-wire rudder system exists now.

Test 3.c.(4) - As written requires three tests - 40C said "Takeoff to Second Segment Climb and Approach to Landing"

Test 3.c.(4) --- Second Segment Climb should be deleted under Flight conditions.
Also in Test details: Typo – CAA should be CCA.

Test 3.c.(6) --- Tolerance: +/-1 deg Pitch Control (Stab and Elev). Please clarify application of this tolerance. Does it mean +/-1 deg on Stab and no tolerance on Elev, or no tolerance on Stab and +/-1 deg on Elev, or split tolerance (say) +/-0.5 deg on Stab and +/-0.5 deg on Elev? Which is correct?

Test 3.d.(3) --- Delete "cockpit" under Test.

Test 3.d.(6) --- Under Test: Add Yaw Damper ON and OFF.

Test 3.d.(7) --- Delete Level A, not in AC 120-40C.

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Test 3.e.(6) --- These are two tests, and should be listed as two separate tests.

Test 3.e.(8) - The term "...may be considered as an alternative..." is too vague.

Table 3.g. --- This is a demonstration test. It does not belong in Table of Objective Tests. It should be moved to Attachment 1, like other demonstration tests.

Table 3.h. --- Tolerance required in Attachment 6 should be written in Tolerance column.

Table 3.i --- Distinction should be made for those tests that are not necessary if airplane flight control computers are used in simulator.

Table 3. Motion System --- This table number should be 4, and subsequent tables should be changed accordingly.

Comments on proposed requirements:

- What deficiencies in training have been recorded, as track record, for the currently qualified simulators that highlight insufficiency in the AC 120-40B motion system requirements?
- Justify the proposed minimum excursion, acceleration and velocity ranges. How do these compare to a typical current Level C motion system?
- What is the added training value by 'higher' proposed minimum requirements?
- From motion system point of view, the requirements for Levels C and D seem unbalanced. The requirements for surge, heave, pitch, roll and yaw can (generally) be met using a motion system with 60-inch stroke actuators. Sway of 90 inches total operational excursion requires a system with approximately 72-inch actuators.

Increased foot-print of motion system meeting proposed requirements will limit use of some of existing facilities.- All SOC's, in view of objective tests, are redundant. Table 3.d --- Under Test details: MQTG should read as QTG and MQTG. Also there is typo – Inject should be Inject.

Table 3.e --- Motion cue repeatability being a subjective demonstration should be moved to Attachment 1.

Motion Section Tests - Is any motion system now being developed able to meet these criteria? The NSPM was told the newest CAE system would not pass these requirements.

Motion Test (e) - Repeatability - If the buffet tests continue to pass why would this test ever fail? This seems like redundant testing.

There are 2 Section 3's, Handling Qualities and Motion System

Test 3.c.(7)-(9) Units of velocity missing. Should be 20°/sec

Recommendation: This entire table should be modified to agree with the amended ICAO document, "Manual of Criteria for the Qualification of Flight Simulators."

ITEM # 195A	Page # 60348	Appen A - Atch 2 – Figure 2
Figure 2. --- "0.1 of Ad" should be at 90% Ad, i.e. in line with T(p0) marking.		
ITEM # 199	Page # 60355	Appen A - Atch 3 - 2.d.(2)(g) List of Operational Tasks

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Discussion: What is a performance turn?

Recommendation: Either define what the task is or delete it.

ITEM # 201	Page # 60356	Appen A - Atch 3 - 2.e.(1)(b)(iii) List of Operational Tasks
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Discussion: I think the correct term is Differential GPS.

Recommendation: Change task.

ITEM # 203	Page # 60360	Attachment 5 to Appendix A Figure 1
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Issue: The sample letter provided does not comply with Part 60 requirements.

Discussion: The “Sample Letter of Request” does not comply with Part 60 requirements, specifically:

60.15(b)(2) – the sample does not include a description of the procedure to verify the configuration, nor a procedure to maintain the configuration in accordance with 60.23.

60.15(b)(3) – the sample does not include “a statement signed by at least one pilot”. The text of the sample includes words that seem to meet the intent of this paragraph, but there is no signature block for the pilot, which is probably reflective of the fact that no pilot would sign such a document anyway.

This error is evidence of the fact that management of Part 60 requirements will be no easy matter.

Recommendation: The sample letter should be re-composed to meet the requirements of Part 60.

ITEM # 203A	Page # 60365	Attachment 5 to Appendix A - Figure 4B
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What is document FAA-S-120-40C? How do we access it?

ITEM # 204	Page # 60365	Attachment 5 to Appendix A - Figure 4B
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Discussion: This table presumes to be an exhaustive list of all training tasks possible in an FSD. The implication is that if a task is not in this table and marked as “qualified,” the task cannot be trained in the FSD. An airline may perform predictive windshear (PWS) training in an FSD. Yet, only reactive windshear is listed as a task (Task H). There is no regulatory basis for a carrier to add to this task list. If it becomes permissible for an airline to modify the list, then there will soon be no standardization in task naming across the industry as each Sponsor adds tasks, as required, likely with user-specific terminology.

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Further, what is the basis for the NSPM to approve or disapprove a checked task? In other words, where is it written at what level an FSD must be before it can be approved for PWS training? This information used to be in the table of subjective tests under AC 120-40x.

Recommendation: A standard media analysis should be conducted and a table indicating the minimum type of training device (e.g., Level 5 FTD, CBT, etc.) that is acceptable to train a specific task or task grouping.

Until that can be completed, this table should be made a matrix and referenced to a known standard (e.g., 8400.10, 8700.10) for each level of training device as is contained in AC 120-40B and JAR-STD 1A (NPA STD-8).

ITEM # 204A	Page # 60370	Attachment 5 to Appendix A - Figure 6
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Discussion: In all References above, remove “Edward Cook” from the FAA’s inside address blocks and “Mr. Cook” from the salutations.

Reason: Using a specific name is not consistent with the name formats illustrated in all other Sample Documents within Attachment 5 of each Appendix.

Recommendation:

In all References above, change occurrences of “Edward Cook” in the inside address blocks and “Mr. Cook” in the salutations to:

“Mr./Ms. _____.”

ITEM # 205	Page # 60370	Attachment 5 to Appendix A Figure 6
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Issue: The sample request letter is inaccurate.

Discussion: This is labeled as Attachment 6, but is actually part of Attachment 5. Also, this sample should be noted as a “Sample Request for Initial Evaluation Date”. Requests for Upgrade or Reinstatement evaluations should have different procedures and timeframes associated with them.

Recommendation: The sample letter should be re-composed to meet the requirements of Part 60.

ITEM # 206	Page # 60371	Attachment 5 to Appendix A (1)
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Issue: The requirement makes no provision for existing qualifications under 121.409d

Discussion: The word “simulator” should be replaced with “FSD”. Further, as written, this section is applicable to *all* simulators. However, many simulators already comply with 121.409d. This paragraph will require that all such simulators submit new documentation, perform new

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demonstrations, and re-qualify for windshear training. This requirement should only apply to new evaluations or to devices that do not already comply with 121.409d.

Recommendation: Re-word this section to allow acceptance of FSD's previously qualified for windshear training.

ITEM # 207

Page # 60371

Appen A - Atch 6 - 2.a.

Discussion: There is no such thing as "...flight test data supplied by the airplane manufacturer..." for windshear data. Is this paragraph intended to address verification of the implementation of Windshear models?

Isn't the last sentence somewhat intuitively obvious? Why include it in the SOC?

Assumption(s)/Note(s):

1. The windshear qualification guidance, Change 2 to AC120-40B, was originally appended to AC120-40B as Appendix 5 on June 9, 1993. This guidance was provided to help operators comply with the windshear-requirements final rule, 14 CFR Part 121 and 135: Amdt. 121-199, Eff. 9/27/88.
2. In April of 1999, the NSP posted a new policy titled **Windshear – Training and Simulator Requirements** that provided additional information and requirements for windshear qualification. The posting of the policy was in part due to the revised windshear-requirements final rule 14 CFR Part 121 and 135: Amdt. 121-216, Eff. 5/9/90, which changed equipment requirements.

Comment(s)/Reason(s):

1. The **Simulator Qualification Requirements for Windshear Training Program Use**, pp. 60371-60372, should not be an attachment to the Appendix A QPS. It should be integrated into the QPS and revised to include the pertinent requirements from the current policy (Note 2 above). Also, change the references to Attachment 6 in the "Additional Details" of Attachment 1, 3., f. and in the "Information Notes" of Attachment 2, 3., h..

Reason: The windshear qualification guidance was originally appended to AC120-40B (Note 1 above) because it was the most efficient means of incorporating it into the AC at the time. It was to be integrated into the AC's main body during the next significant revision of the AC. Also, the additional test and equipment (e.g. predictive) requirements in the current policy (Note 2) should be included in the guidance.

2. Remove QPS Requirement "a." in Attachment 6. There are two SOC issues here, and it would be more appropriate to address each in the relevant section of Attachment 1 now that the requirements are being integrated into the QPS.

Reason: When the interim simulator requirements document for windshear was initially released, it was as an attachment to AC120-50, not AC120-40. Therefore, additional language was included in the attachment that would have normally been in other sections of AC120-40. This is no longer the case.

Document 1:

ATA STIG Response to FAR Part 60 NPRM

(Docket Number: FAA-2002-12461)

Note: See STIG Copy of NPRM with circled reference numbers submitted to the docket as separate document. This will assist in guiding the reader to the specific Federal Register page for comments related to the numbered items.

Recommendation:

1. Integrate the **Simulator Qualification Requirements for Windshear Training Program Use**, along with the pertinent policy revisions, into Attachments 1 and 2 just as the **Ground Effects Requirements** currently are (see Paragraph 3.m. in Attach. 1). For instance, move all of the language to a new paragraph **9. Simulator Qualification Requirements for Windshear Training Program Use** after **8. Alternative Data Sources** in Attachment 2. Then, in Attachment 1, Paragraph 3., f., add the SOC requirement for proper windshear computation to the “Additional Details” and reference the new Attachment 2, Paragraph 9, in the “Information Notes” in lieu of Attachment 6. Change all other references from Attachment 6 to Attachment 2 Paragraph 9.
2. Of the two SOC issues in QPS Requirement “a.” of Attachment 6, the windshear computation one is already addressed in Comment 1 above. The SOC requirement for the aerodynamic model should be put, say, into the “Additional Details” of Paragraph 3.a.. For example, add “A SOC is required confirming that the aerodynamic model is based on flight test data supplied by the airplane manufacturer, or other approved source.”

ITEM # 208

Page # 60373

Appen B – 2.

Comment --- There is no mention of color coding in appendix A. If color coding is adopted, it should be consistently applied to all appendices.

ITEM # 209

Page # 60376

Appendix B – 8.(i)

Discussion: Wrong paragraph reference

Recommendation: Change paragraph 13 to paragraph 14

ITEM # 210

Page # 60383

**Appendix B – Attach 1
General FTD Requirements**

Test 2.a. & 2.c. --- There is duplication of requirements for “circuit breakers” for location and functionality in these tables. Duplication should be corrected.

7.a. --- Requirement (6) is very restrictive, and cannot be done for night/dusk scenes.

ITEM # 211

Page # 60387-90

**Appendix B – Attach 2
FTD Objective Tests**

Para 1.a.(1) --- “..... Test data described in 60.13, and paragraph 9 of this attachment” Should read as “.... Test data described in 60.13, and paragraph 9 in the main body of this appendix”

Para 1.a.(3) --- “ ... included in this appendix ...” should read as “.... included in this attachment...”

Test 2.c.(1) & (2) --- There is mismatch between Landing under Flight conditions and Rejected Takeoff requirement under Test details. Needs correction.

Document 1:

ATA STIG Response to FAR Part 60 NPRM

(Docket Number: FAA-2002-12461)

Note: See STIG Copy of NPRM with circled reference numbers submitted to the docket as separate document. This will assist in guiding the reader to the specific Federal Register page for comments related to the numbered items.

Test 2.d.(2) --- Under Test details: +/- 1% should be +/- 1.

Test 3. --- Under Note: “.... of an alternative method during the initial ...” should read as “... of an alternative method. Repeat of the alternative method during the initial ...”

Test 3.a.(1)(b) --- This should be applicable to level 5.

Test 3.a.(2)(a) --- Tolerance: 27 deg should be 2 deg for spoiler.

Test 3.b.(5) --- Tolerance: “+/- 2% net thrust or equivalent in cruise, +/- 5% net thrust or equivalent in approach and landing” should be “+/- 5% net thrust or equivalent”. This tolerance will be consistent with appendix A

Test 3.c.(3)(b) --- Do you really mean 20 sec under tolerance? AC 120-45A requires 30sec.

ITEM # 212	Page # 60393	Appendix B – Attach 2 – Figure 2
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Figure 2. --- “0.1 Ad” should be redrawn in line with “90% of Ad” location